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Editor - Captain H. GARBETT, R.N. (Retired),

To whom all communications should be addressed.

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The Journal, published monthly, is sent post free to all members. It contains the lectures given in the Theatre, articles on professional subjects, naval and military notes, book notices, &c.

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AND

Major M. H. Gregson, late R.E.

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5 & 7, LEXHAM GARDENS, KENSINGTON, W.

We have retained the services of all the Tutors who have been so remarkably successful in past years, and continue to receive both resident and non-resident candidates.

RECENT SUCCESSES INCLUDE—

STAFF COLLEGE, AUGUST, 1906.

The following Officers, whose names are arranged in regimental order, were successful from us at the recent Competitive Examination for admission to the Staff College:—

Capt. C. Evans, R.F.A.
Capt. G. C. Merrick, D.S.O., R.G.A.
Capt. W. H. Moore, D.S.O., R.G.A.
Capt. J. P. Mackesy, R.E.
Capt. B. W. B. Bowdler, R.E.
Capt. F. D. Farquhar, D.S.O., Coldstream Gds.
*Capt. R. G. Parker, Royal Lancaster Regt.
Capt. G. N. T. Smyth-Osbourne, Devonshire R.
Capt. V. H. M. de la Fontaine, East Surrey R.
Capt. and Brev. Major F. R. Hicks, Hamps. R.
Capt. H. S. Williams, Dorsetshire Regt.
Capt. B. D. L. G. Anley, D.S.O., Essex Regt.
Capt. R. S. Hamilton-Grace, Durham L.I.
*Capt. H. F. Baillie, Seaforth Highlanders.
Capt. P. S. Allen, Gordon Highlanders.
Capt. J. K. Cochrane, Leinster Regt.
Capt. R. L. Ricketts, Indian Army.
Capt. W. K. Bourne, Indian Army.
Capt. F. W. Lumsden, Royal Marine Artillery.

And the following received nominations:—

Captain H. C. Bickford, 6th Dragoon Gds.
Captain C. J. C. Grant, Coldstream Gds.
Captain W. D. Wright, V.C., R.W. Surrey R.
Captain C. H. Harington, D.S.O., Liverpool R.
Captain H. Wake, D.S.O., K.R.R. Corps.
Captain and Brev. Major N. J. G. Cameron, Cameron Highlanders.
Captain G. P. Grant, D.S.O., Indian Army.

SANDHURST, JUNE, 1906.

FIRST	...	A. G. Armstrong	5,541	129th	...	R. P. T. Ffrench	3,827
48th	...	H. G. Gauntlet	4,515	181st	...	C. W. Molony	3,445
67th	...	D. Macdonald	4,299	186th	...	P. J. I. Synnott	3,386
89th	...	W. G. Bagot-Chester	4,115	190th	...	R. M. Aylmer	3,339
90th	...	A. G. Ottley	4,109	197th	...	O. Gough	3,262
93rd	...	A. P. Williams-Freeman	4,094	201st	...	P. W. J. A. Stomm	3,151
115th	...	D. M. Black	3,940	213th	...	B. W. Molony	2,881
125th	...	W. J. King-King	3,846				

WOOLWICH, JUNE, 1906.

31st	...	J. S. Barkworth	6,483

DECEMBER, 1905.

SECOND	...	H. G. MacGeorge	7,196	16th	...	R. Crofton	6,330
FOURTH	...	G. Walton	7,046	45th	...	D. Stephenson	5,899
FIFTH	...	H. A. Cox	6,967	54th	...	J. Kennedy	5,711

This was the First Examination under the new regulations, and our pupils secured THREE out of the first FIVE places.

MILITIA COMPETITIVE, MARCH, 1906.

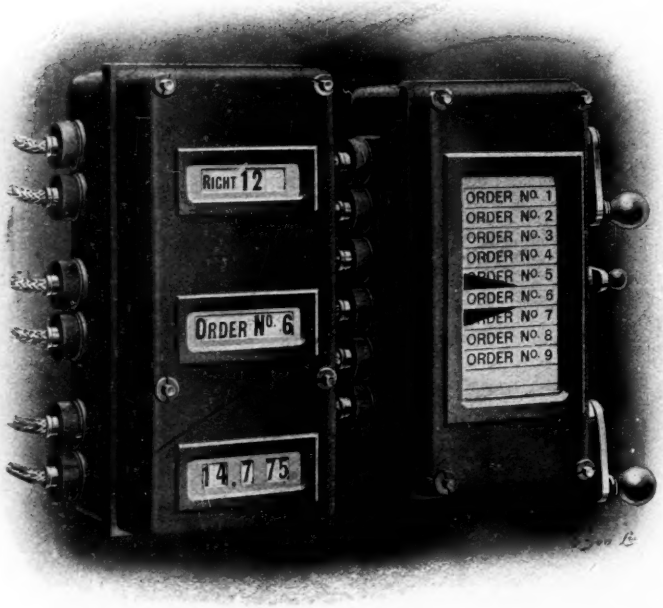
A. E. Hardy	...	W. F. Anderson	1,947
N. H. Hutcheson	2,105	D. C. Robinson	1,879
*F. D. Frost	1,949	F. A. Bowring	1,876

* Read partly at the Army College, Aldershot.

ARMY QUALIFYING, 1906.

NINETEEN PASSED FROM US.

Special Arrangements have been made for the next Examination.



BARR AND STROUD'S PATENTS.

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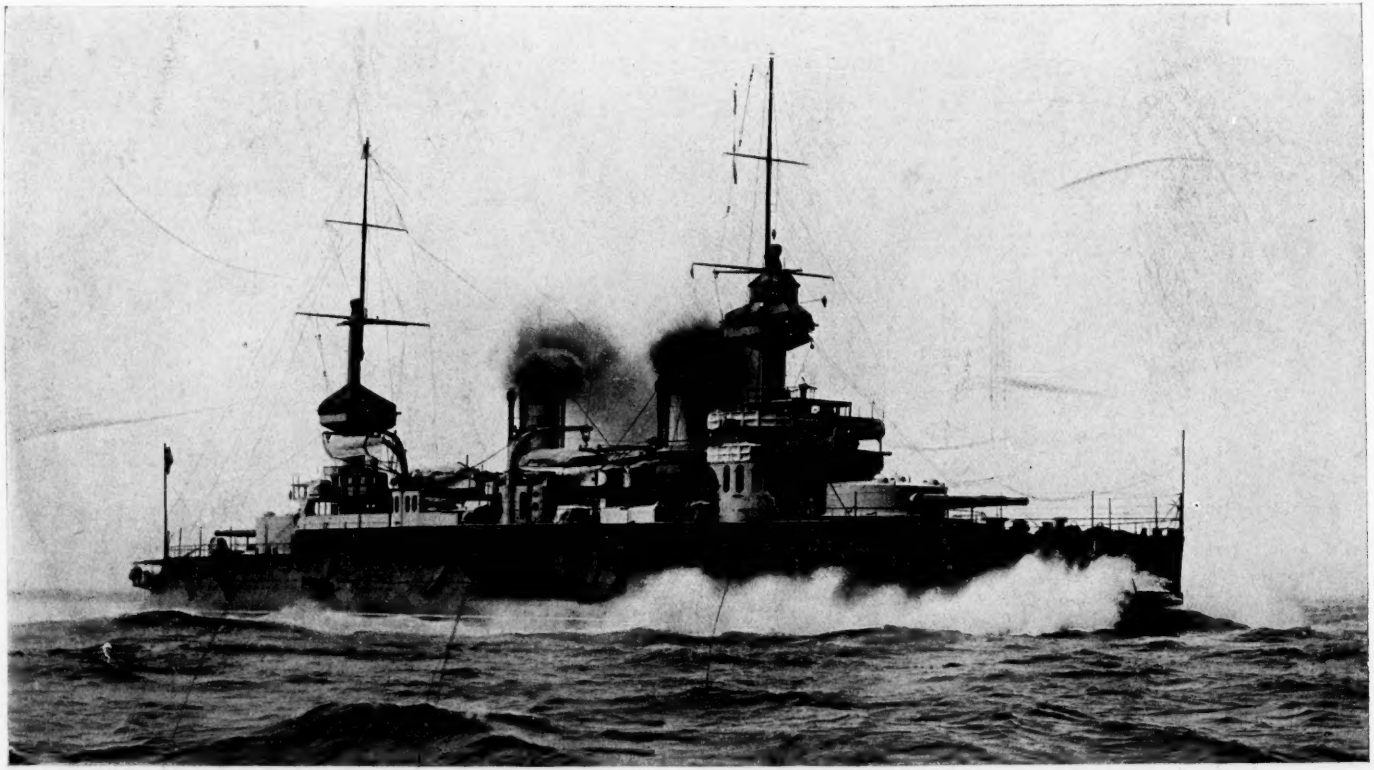


FRENCH FIRST-CLASS BATTLE-SHIP "IÉNA," 12,052 Tons; 15,500-I.H.P.; Speed, 18 Knots.
Accidentally blown up at Toulon, 12th March, 1907.

ARMOUR PROTECTION:—Water-line belt, 13·8 inches; Upper belt, 4·8 inches; Turret armour thickness not published. Bulkheads, 5 inches. Armoured deck, 2·8 inches.

ARMAMENT:—Four 12-inch guns in turrets, one forward and one aft; Eight 6·4-inch Q.F. guns in casemates; Eight 3·9-inch Q.F. guns, with sixteen 3-pounder and eighteen 1-pounder Q.F. guns, and four torpedo-tubes, two submerged.

See Naval Notes.

J. J. K. & Co., Limited, London.

THE JOURNAL
OF THE
ROYAL UNITED SERVICE INSTITUTION.

VOL. LI. MARCH, 1907. No. 349.

[*Authors alone are responsible for the contents of their respective Papers*].

SECRETARY'S NOTES.

1. His Royal Highness the Prince of Wales visited the Museum on Monday, 11th March, and inspected the progress of the restoration of the Rubens Ceiling, now being carried out under the direction of His Majesty's Office of Works.

2. The following officers joined the Institution during the month of February :—

Captain A. D. Murray, R.G.A.
Lieutenant M. E. Mascall, R.G.A.
Colonel H. Hughes, C.M.G., 1st V.B. York and Lancaster Regiment.
Lieutenant R. L. Clayton, R.N.
Captain L. C. Jackson, R.E.
Captain P. E. Knapp, Indian Army.
Lieut.-Colonel J. F. Meiklejohn, late R.H.A.
Lieutenant M. B. Selby-Smyth, 7th Bn. Rifle Brigade.
Major L. Pelly, Essex Imperial Yeomanry.
Captain C. F. P. Parry, R.F.A.
Lieutenant R. P. Lewis, Devonshire Regiment.
Major R. E. Tomlin-Money-Shewan, R.E.
Lieutenant G. H. Harrison, Border Regiment.
Captain J. C. Simpson, Indian Army.
Lieut.-Colonel F. L. Sanders, 6th Bn. Lancashire Fusiliers.
Major W. E. Donohue, A.S.C.
Major L. James, King's Colonials I.Y.
Lieutenant F. W. A. Steele, Australian Field Artillery.
Captain Hon. O. H. Stanley, R.F.A.
Lieut.-Colonel W. A. W. Strickland, M.V.O., Indian Army.
Captain D. McNeill, late 2nd Dragoons.
Second Lieutenant H. N. Fane, Coldstream Guards.
Lieutenant H. Taylor, Scots Guards.
Second Lieutenant P. R. B. Lawrence, Coldstream Guards.
Lieutenant S. W. Herringham, 6th Dragoons.
Second Lieutenant C. H. Lemmon, R.F.A.
Lieutenant C. C. Dangar, 13th Hussars.
Lieutenant J. L. Mowbray, R.F.A.
F. Bennett-Goldney, Esq. (Athlone Pursuivant), late Captain 4th Bn. Middlesex Regiment.
Second Lieutenant E. L. Spiers, 8th Hussars.
Captain A. A. Mercer, Dorsetshire Regiment.
Captain H. C. R. Green, King's Royal Rifle Corps.

(No officer of the Royal Naval Reserve joined the Institution during the month.)

3. At the Anniversary Meeting held on Tuesday, 5th March, the following officers were elected to the vacancies on the Council :—

Admiral of the Fleet The Lord Walter Kerr, G.C.B.
Major-General Sir Thomas Fraser, K.C.B., C.M.G.
Colonel J. H. Bor, C.M.G., A.D.C., R.M.A.
Lieutenant G. R. Maltby, M.V.O., R.N. (retired).

The Report, with Accounts, will be issued with the April number of the JOURNAL.

4. Several applications having been made for the January, 1901, number of the JOURNAL of the Institution, and the supply being exhausted, the Secretary would be greatly obliged if members having, and not requiring, the same would kindly give them to the Institution.

5. MILITARY HISTORY LECTURES:—

The Council have arranged for a course of lectures in Military History on the subjects set for the May Promotion Examinations. The Lecturer will be Mr. J. H. Anderson, F.R. Hist. Soc., Barrister-at-Law. These lectures will take place on the following dates :—Tuesday, 16th April; Friday, 19th April; Tuesday, 23rd April; Friday, 26th April; Tuesday, 30th April; Friday, 3rd May; Tuesday, 7th May; Friday, 10th May; Tuesday, 14th May; and Friday, 17th May.

The first lecture will be at 4 p.m.

The Lecturer is anxious that all candidates should be provided with the following books:—

Robinson's "Wellington's Campaigns," Parts II. and III.
J. H. Anderson's "Peninsular War, 1811-14."

And for those who desire to study the subject thoroughly:—

Napier's "Peninsular War."
L. Butler's "Peninsular War, 1808-14."

The fee for the course of lectures is one guinea for members and two guineas for non-members. The Secretary will be glad if officers would send in their names as early as possible.

6. The following additional lectures have been arranged :—

Wednesday, 20th March, "The Factor of Mobility in Strategy," by Colonel F. N. Maude, C.B., General Sir J. D. P. French, G.C.V.O., K.C.B., K.C.M.G., presiding.

Wednesday, 27th March, "The Native Races of South Africa, from a Military Point of View," by Colonel H. B. Jeffreys, C.B., R.A., *p.s.c.*, Major-General R. S. S. Baden-Powell, C.B., presiding.

7. NAVAL ESSAY, 1906:—

The Gold Medal of the Institution, together with the first Trench-Gascoigne Prize of thirty guineas, for the Naval Essay, 1906, has been awarded to Lieutenant B. E. Domvile, R.N. The second Trench-Gascoigne Prize of thirty guineas has been given to Lieutenant N. F. Usborne, R.N. The Essay by Lieutenant E. V. F. R. Dugmore, R.N., has been placed third by the Referees. The subject was :—

"What is the Relative Value of Speed and Armament, both Strategically and Tactically, in a Modern Battle-ship, and how far should either be Sacrificed to the other in the Ideal Ship?"

The Referees were :—

Admiral Sir G. H. U. Noel, K.C.B., K.C.M.G.
Rear-Admiral R. L. Groome, C.V.O.
Captain G. A. Ballard, R.N.

Who, in their report, state that the Institution is to be congratulated on the excellence of the Essays submitted.

The Council have conveyed their best thanks to the Referees.

THE INHERENT TACTICAL QUALITIES OF ALL-BIG-GUN ONE-CALIBRE BATTLE-SHIPS OF HIGH SPEED, LARGE DISPLACEMENT AND GUN-POWER.

By Lieut.-Commander WM. S. SIMS, U.S. Navy,
Inspector of Target Practice.

Reproduced by permission from the "Proceedings of the United States Naval Institute."

IN the "Proceedings of the Naval Institute" for June, 1906, in an article entitled: "Reflections, Historic and Other, Suggested by the Battle of the Japan Sea," Captain A. T. Mahan, U.S. Navy, retired, has stated his conclusions concerning the characteristics of men-of-war best suited for increasing a nation's naval power—assuming a certain limit of expenditure for new vessels.

These conclusions are, I believe, opposed to those reached by practically all naval officers who have given this subject serious consideration; but so great is the weight of Captain Mahan's opinions, that they would doubtless be accepted by those who may not be in possession of certain recently acquired information, which bears with such directness and force upon the question of the fighting qualities of battle-ships as apparently to demonstrate that Captain Mahan's conclusions thereon are in error.

In the following analysis of this question, I will endeavour to show that this information is of such a fundamental nature as to necessitate a re-examination of both old and new facts, from a point of view differing widely from that taken by Captain Mahan, concerning the qualities of the design that will permit the development of the maximum concentration of effective gun-fire, that is, a fleet's maximum concentration of *hits*.

In the first place I beg to express the opinion that if, when Captain Mahan wrote his article, he had been in possession of certain important information that has since become available, his conclusions would have been considerably modified; and while I would not presume to oppose his views as to the conclusions to be drawn from the facts as he has assumed them, and as he understands them, still, I feel that I am justified in restating these facts, as I understand them, in the light of the new evidence above referred to, and basing thereon my conclusions.

Captain Mahan's principal conclusions may be summarised briefly, as follows:—

1. That, in designing battle-ships of a certain displacement, we are never justified in increasing the speed, within reasonable limits, at the expense of the equivalent weight in gun-power.

2. That we are not justified in substituting heavy turret guns, such as 12-inch, for the equivalent weight of the usual intermediate guns, 6-inch, etc. In other words, that the all-big-gun ship is a mistake.

3. That, considering the necessary limit of expenditures, and the requirements of a navy with wide naval responsibility, we should not materially increase the size of the ships now being designed.

These conclusions are admittedly derived from, or supported by, an analysis of the available information concerning the battle of the Sea of Japan, and also upon an analysis of the battle efficiency of guns of various calibres, based upon Captain Mahan's ideas upon the subject.

In reference to this important battle, Captain Mahan has stated that many details are wanting, and probably can never be supplied, the drama having passed too rapidly, and the actors having been too busily occupied, to take precise notes.

Fortunately, this is no longer true, for in the same number of the Naval Institute, in which Captain Mahan's article appears, there is published a very important paper, giving a history of this battle, that is founded upon very precise notes. The author of this paper, Lieutenant R. D. White, U.S.N., is a distinguished gunnery officer who was, at my request, recently assigned to duty as my assistant. I am, therefore, informed as to the manner in which his information was obtained; and while I am not at liberty to state more in this respect than Mr. White has thought proper to give in the introductory note that precedes his article, still I may state that his plan, or chart, of the battle (herewith reproduced) was drawn to scale from the very full data (bearings, distances, and speeds) supplied by the Russian observer indicated, who also gave him the other important information contained in the article—the acquisition of all of this information fortunately being facilitated by a continuous and intimate association of two or three weeks with the observer in question, whose competence is fully established by Mr. White's testimony.

As this officer was a naval constructor, "having no station in battle, he was selected to observe and record the events of the battle." I think it may therefore be fairly assumed that Mr. White's article gives the history of this action with greater precision than that with which any naval battle has ever before been reported; and that we may therefore rely upon the main facts contained in his account.

Assuming that Lieutenant White's account of the battle in question is substantially correct, it follows that much of the information upon which Captain Mahan has based his conclusions is in error to a greater or less degree. The errors in some cases are not important, but in others they appear to be in effect diametrically opposed to the truth.

For example, taking these errors as they come, Captain Mahan has assumed that, shortly after the Russian and Japanese fleets sighted each other, the Japanese changed course from S.W. to East, while the Russians were steering about N.E., and that the Japanese speed was slower than that of the Russian—"2 or 3 miles to the Russian 4." Under these conditions, that is, with the courses and speeds assumed, the rate of change of range would have been very rapid, and therefore very little hitting could have been done. As a matter of fact,

the Russians were steering about NN.E., and the Japanese, after turning from S.W. to East, took a course nearly parallel to them, on their port bow. Thus, the rate of change of range was rendered small, the Japanese fire was concentrated upon the head of the Russian column, and was so effective that the "Suvaroff" was driven out of the line and the "Osliabia" sunk by the time the Russians had advanced about five miles.

The above shows that the nature of the action was rather different from that which Captain Mahan's information led him to suppose. It is therefore unnecessary to follow out the details of the reasoning by which he assumes that Admiral Togo was influenced in taking a position (across the head of the enemy's column) which he did not take; but it is important to point out that the Japanese admiral's plan of action was what we would have supposed it to be, in the light of our present knowledge of the conditions necessary to the most effective hitting at long ranges.

In the first place it may be confidently assumed that Togo was in possession of the following important facts:—

1. That his fleet speed was considerably greater than that of his enemy—the bottoms of his ships being clean and theirs foul, and there being slower ships in the Russian fleet than in his.

2. That his markmanship was superior to that of the Russians.

3. That Russian gunnery training had for years been carried out with the object of bringing an enemy to close quarters, and that, even assuming that they had profited by their experience in the actions off Port Arthur, the Baltic Fleet could not have had adequate training in long-range firing.

4. That, in order to render effective the tactics indicated above, the Russian ships were heavily armed and their crews trained for rapidity of fire.

The above being true, it is clear that Admiral Togo must have gone into action with two principal objects clearly defined in his mind, namely:—

1. Fight at the maximum range at which actual experience at battle practices had shown him that he could do effective hitting (about 6,000 yards), and at which he knew that the Russian fire would not be dangerous.

2. So manœuvre as to maintain the least practicable rate of change of range while concentrating his fire as frequently as possible upon the head of the enemy's column.

If he had not been able to accomplish these two objects he might still have won the battle because the Russians were so very inferior in many other respects, but he certainly would have suffered more. For example, if the Russians had been able, by superior speed, to run in to 1,800 yards (the battle range of their choice), they would have made a large percentage of hits, and these hits would have been very effective, especially from their modern ships of French design ("Suvaroff," "Alexander III.," "Borodino," "Orel").

A glance at Lieutenant White's chart (*see* pp. 272-273) will show, however, that the Japanese admiral had no difficulty (barring thick weather) in repeatedly choosing his own position (distance and bearing) with reference to the head of the enemy's fleet, and that the battle, there-

fore, resolved itself into a competition between the fire-control officers of the two fleets as to which could make the most hits, under the conditions selected by the Japanese—these conditions being, of course, very unequal, since the Japanese were able frequently to concentrate the fire of many ships upon a few of the Russians.

Let us now consider the manifest object of the Russian admiral's strategy and tactics, with a view of determining why he was unable to succeed.

In the first place, we know, from a certain unpublished report, based upon indisputable authority (and which is practically confirmed by Lieutenant White's report), that the Russian battle-ships were so overloaded with stores and coal that the upper edges of their heavy armour belts were well below the water-line (and that, therefore, in so far as hull protection was concerned, they were armoured cruisers and not battle-ships); also that compartments, cabins, passages, etc., were so filled with coal and stores that the men's water-closets and urinals had been blocked since leaving Saigon, and that the decks were in consequence in an indescribable condition.

We may, therefore, safely assume that the Russian admiral approached the Tsushima Straits with two objects uppermost in his mind, namely:—

1. The most important was to elude the Japanese and take shelter in Vladivostok until he could land his stores, dock and refit his ships.

2. If forced to fight, to do so at the shortest range possible, where most of his shots would count.

He was defeated in both of these objects solely by the superior speed of the Japanese; assuming, of course, that he could not pass through the Straits without being detected. Once he was sighted by the Japanese, which was inevitable, their superior speed (which as shown later, was 6 to 7 knots greater than that of the Russians) rendered impossible his escape without fighting; and, as previously shown, this superiority of speed enabled the Japanese repeatedly to concentrate upon his leading ships, and thus destroy or disable them one at a time—or force them to accept defeat in a worse form, namely, by abandoning their attempt to reach Vladivostok, thus surrendering the command of the sea without inflicting any damage upon the enemy.

It is, of course, understood that, assuming all other qualities to be equal, a relatively small superiority of speed cannot alone determine a victory by gun-fire, under the usual "game-board" conditions; that is, where sea room is unlimited; where it is always daylight; where thick weather does not act as an occasional screen; where the slow fleet is not embarrassed by having to get anywhere in particular; where there is no convoy or fleet of essential auxiliaries to lose in case of retreat, etc.

In this case the slow fleet can prevent the fast one from taking up a position of continuous advantage, by simply keeping the head of the enemy's column abeam—thus steaming on the arc of a circle of sufficiently smaller radius to counteract the superiority of speed of the fast fleet.

The sole tactical ability of the slow fleet is a negative one—one of equality only, as regards gun-fire; it can never attain an advantage of position, assuming equal skill on both sides; its tactical ability

exists only in the open sea; and, even then, the fast fleet always has the great advantage of being able to:—

1. Refuse or accept battle.
2. Choose his own range.
3. Control the rate of change of range.
4. Control the compass bearing, thus taking advantage of the weather conditions that favour his own gun-fire.

That is to say, always assuming equal tactical skill, the slow fleet can neither gain in advantage nor accomplish a definite object, while a fleet that is slightly faster can:—

1. Bring the slow one to action, or refrain from so doing until the conditions suit him, or until he has made such disposition of his forces or auxiliaries as he pleases.
2. Can choose his own range, and change it at will.
3. Can close to fighting range when the wind and sea and sun are in the most advantageous positions for increasing the efficiency of his own gun-fire, withdrawing outside of effective range when these conditions become unfavourable to him.

It follows from the above that the slow fleet must always fight at a disadvantage, even in the open sea; and that when restricted in its movements by the neighbourhood of land or shoal water, by the necessity of protecting essential auxiliaries, by the necessity of reaching a definite point, or by the necessity of leaving a port in the face of a blockading enemy, it must inevitably be defeated by a faster fleet of equal power, and can be defeated even by a faster fleet of less power.

For example, twelve 16-knot vessels could be blockaded by a less number of 20-knot, or even 18-knot, vessels of the same individual gun-power, even assuming that the latter would refrain from attacking until the former were all outside and formed for battle, because the blockaded vessels would, on coming out, be caught between the land and the enemy, and thus forced to steer a practically straight course, while the faster fleet could, while keeping outside of effective range, draw ahead and then close in with a concentrated fire on the head of the column—or the stern of the column, if it reversed its course.

The blockaded fleet would be constrained to try and reach the open sea (in the same manner that the Russian squadron was constrained to continue northward, sooner or later, through the Tsushima Straits), and would suffer defeat in the process, by reason of the ability of the faster fleet repeatedly to assume positions enabling it to concentrate its fire on the extremities of the enemy's fleet.

Incidentally, it should also be noted that a fleet of small vessels would have a considerably less coal endurance than a fleet of large ones, when both are manœuvring at the speed of the former, and that the fleet of large vessels, while avoiding decisive action and preventing its enemy from proceeding in any given direction, can ultimately attack when the latter is obliged to abandon the open sea.

If, therefore, a fast fleet can defeat a slow one under all circumstances, except when the latter is entirely unrestricted in its movements, it seems clear that no nation would be justified in deliberately building a slow fleet having the above enumerated dangerous disadvantages; that is, a fleet that would be practically certain of defeat

whenever the exigencies of its service in war brought it in contact with an enemy of equal force while in the neighbourhood of land, or while restricted in its movements by the nature of its service or from any other cause.

From the above it seems clear that, in the light of our present knowledge of the fundamental principles of long-range gun-fire, a superiority of speed that will enable a fleet frequently to concentrate its fire on an enemy that is not entirely unrestricted in its movements, as above explained, is more important than the additional guns corresponding to the weight (in boilers and engines) required to give this superiority in speed.

Captain Mahan assumed that the Russian fleet maintained "on 27th May a fleet-speed of at least twelve knots, while the Japanese seem not to have used more than 15." Lieutenant White's informant states that the Russian fleet speed was 9 knots, and the Russians estimated the Japanese speed as 16 knots. As Mr. White's chart is a chart, plotted to scale from the precise data taken by his informant, and not simply a diagram to illustrate his text, it follows that if we measure the distances steamed by the two fleets, from 1.55 p.m. to 6.25 p.m. (4·5 hours), and divide these distances by this elapsed time, the results will be the fleet speeds—though the calculation will be rough, as the scale of the chart is small. This calculation shows that, during the 4·5 hours, the Russians steamed 40 miles while the Japanese steamed 68, which gives the average speed of the former, as a little less than 9 knots, and that of the latter as a little more than 15. It should be noted, however, that the Japanese speed "alternated 0 to 16 knots" between 3.40 and 4.15, therefore, their fleet speed was probably considerably more than 15 knots.

The Japanese superiority in speed was, therefore, more than six knots, an advantage so enormous that no conceivable strategical or tactical skill, and no possible augmentation of gun-fire (without increasing the displacement) on the part of the Russians, could have prevented their defeat, even supposing but a rudimentary knowledge of strategy and tactics on the part of the Japanese admiral, and assuming, of course, that the Russian fleet was constrained to force its way sooner or later through the Straits.

Before leaving this question of speed, it may be well to point out that if the speed of the Japanese and Russian fleets had been reversed, Admiral Togo could not possibly have prevented the Russians (1) escaping to Vladivostok, or (2) bringing the Japanese to battle at short range—if they had so desired. This is clear by a reference to Mr. White's chart. For example, at 1.55 p.m. the head of the Japanese column bore about WNW from the Russian flag-ship, distant about 3·5 miles, so that the Russian ships, by steering an easterly course, could have left the Japanese out of sight astern, and then, hauling to the northward, could have gained Vladivostok.

Furthermore, Admiral Togo's comparatively easy strategy would have been so modified by a reversal of the speed conditions, that he would have been obliged to await the Russians off Vladivostok, out of range of the outer forts, in a region of frequent and dense fogs, and do them what damage he could as they passed in.

It may also be pointed out that, shortly after 4.15 p.m. (see the chart), the Japanese lost sight of the Russians, due to thick weather, and steamed seven or eight miles to the southward in search of them, and when they turned to the northward in pursuit, they were about

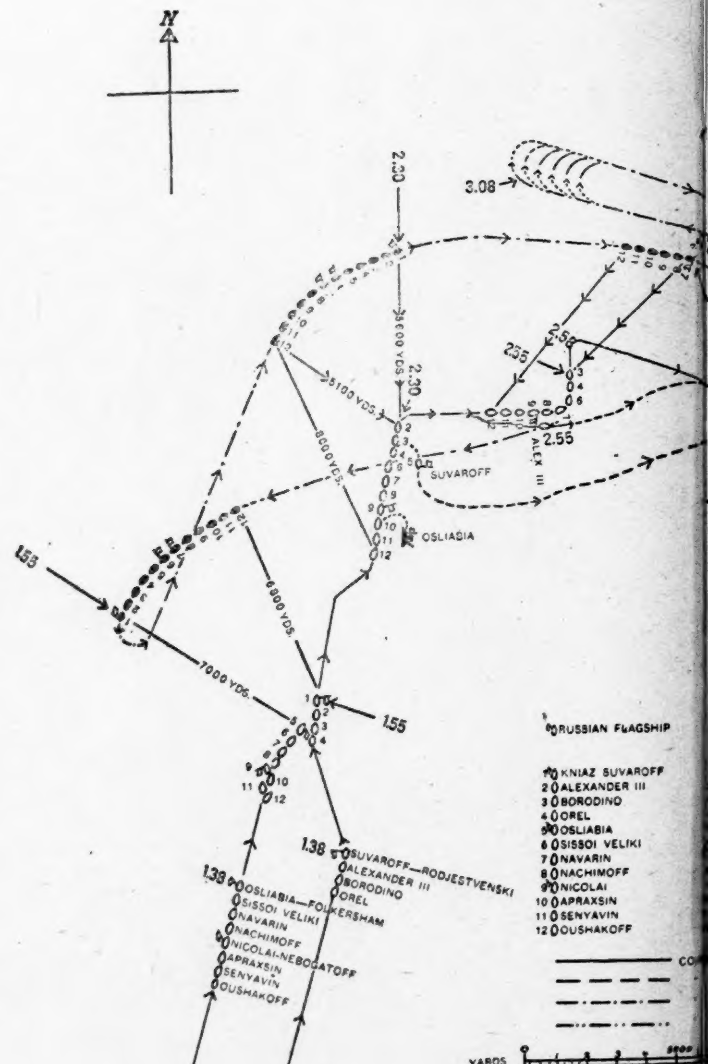
10 miles astern; therefore, if the Russians had had even one-quarter of a knot superiority in speed, they would have arrived at Vladivostok a couple of hours ahead of their pursuers.

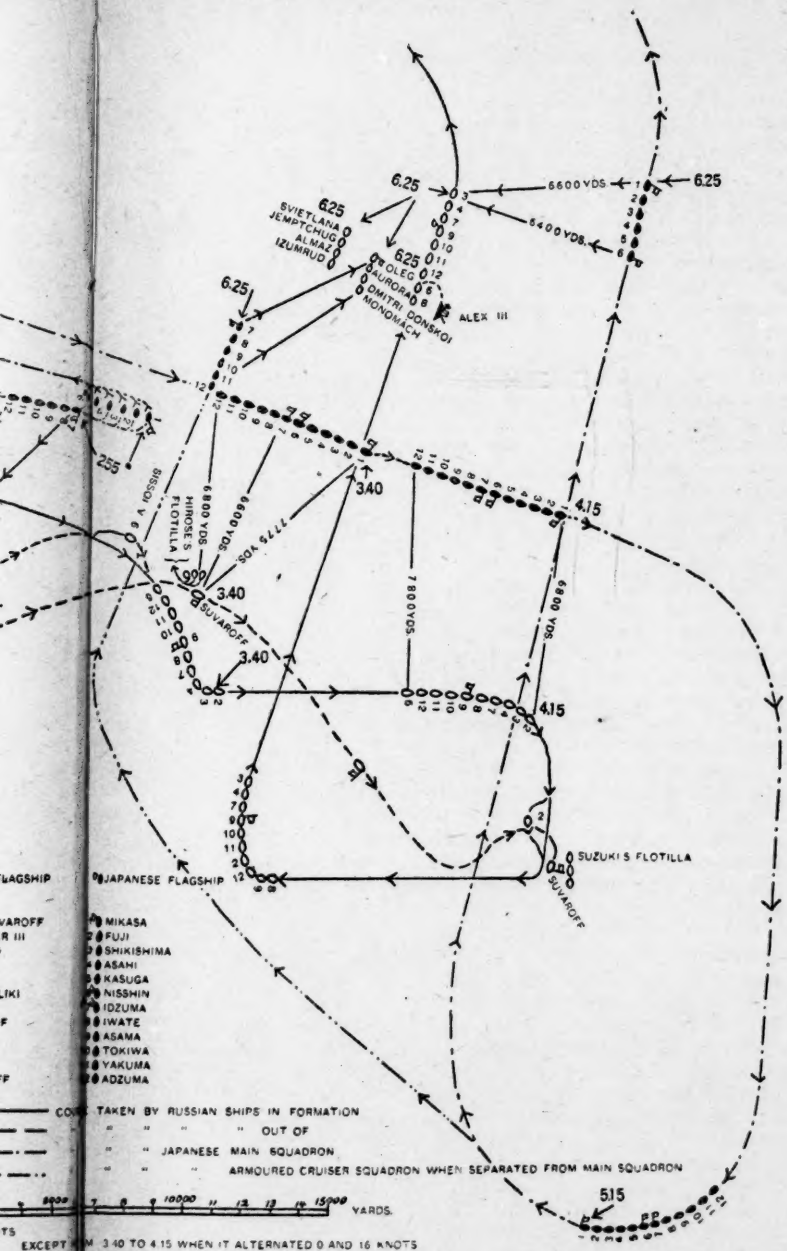
It is, of course, admitted that the superior speed of new ships cannot at once be fully utilised while in fleet formation with slower ones, and that it would be very convenient if all nations would decide not to exceed a certain speed in the design of new vessels. But since such an agreement is probably impracticable; since at present they insist upon building large, 20-knot battle-ships, should we build 16-knot ships with about one-half the heavy gun-power? To do so would mean that, 25 years hence, when most of the existing ships will be on the scrap-heap, we would still have a 16-knot fleet, while our possible enemies would have 20-knot fleets of large vessels each with about twice as much gun-power. We would have more vessels—a longer fleet—but that would avail us nothing against an enemy having units of about double the gun-power concentrated in a fleet about one-half the length of ours, and with the necessary speed frequently to take up positions of advantage, thereby enabling them further to concentrate their fire, whenever the manœuvres of the enemy were restricted by any of the causes above mentioned.

Manifestly, one of the very greatest advantages afforded by large vessels is a tactical one, namely, the inherent ability to concentrate double the gun-power in a line of battle about one-half as long as that necessarily required for ships of about one-half the heavy gun-power; but this can best be explained after discussing the advantages of large vessels from the point of view of the control of gun-fire alone.

It is true that the speed of a fleet may be reduced by damage to the motive power of one of its units, but this has very rarely happened, because engines, boilers, etc., are below the water-line, and well protected by the heaviest armour. Captain Mahan lays great stress upon the alleged effect of the loss of funnels, or smoke pipes, saying that the resulting loss of speed would be so great that "The loss of a modern funnel will be like the loss of a former-day mast." This appears to me to be a great exaggeration. As I understand this matter, the principal reason for building a tall funnel is to increase the natural draft, and thus render steaming more economical in time of peace. With lower funnels the natural draft is smaller, as the column of hot air is shorter, and this necessitates the use of forced- or "assisted-" draft during ordinary cruising. Tall funnels have always been a mistake, from a military point of view, because when a vessel having them goes into battle, and forced draft is put on to develop her maximum speed, the tall funnel adds very little to the draft, by reason of its height. It has been reported that the British ship "Edgar" lost two of her funnels in a gale of wind without any material diminution in her speed. If, therefore, we should be obliged to go into battle with our present absurdly high funnels, we may regard their being shot away, or riddled with holes, with comparative equanimity (provided they do not fall on deck and disable guns), since in either case the draft will not be materially decreased—as a high funnel corresponds to a pressure of about one-half an inch of water, whereas blowers will create a pressure corresponding to about two inches of water.

It may be well to notice, moreover, that the requirements of fire-control necessitate much shorter funnels, because gun-fire can be


N
3.08
2.30
3600 YDS.
2.30
5100 YDS.
8000 YDS.
2.58
255
2.55
ALEX III
SUVAROFF
OSLIABIA
1.53
6800 YDS.
7000 YDS.
1.55
1.38
SUVAROFF—RODJESTVENSKI
ALEXANDER III
BORODINO
OREL
1.38
OSLIABIA—FOLKERSHAM
SISSOI VELIKI
NAVARIN
NACHIMOFF
NICOLAI-NEBOGATOFF
APRAXSIN
SENYAVIN
OUSHAKOFF
RUSSIAN FLAGSHIP
1 KNIAZ SUVAROFF
2 ALEXANDER III
3 BORODINO
4 OREL
5 OSLIABIA
6 SISSOI VELIKI
7 NAVARIN
8 NACHIMOFF
9 NICOLAI
10 APRAXSIN
11 SENYAVIN
12 OUSHAKOFF
YARDS
RUSSIAN SPEED 9 KNOTS
JAPANESE " 16 " EXCEPT


6.25
6600 YDS
6400 YDS.
SVIETLANA
JEMPTCHUG
ALMAZ
IZUMRUD
OLEG
AURORA
DMITRI DONSKOI
MONOMACH
ALEX III
3.40
4.15
5.15
7775 YDS
7800 YDS
6800 YDS
HIROSE'S FLOTILLA
SUVAROFF
SUZUKI'S FLOTILLA
JAPANESE FLAGSHIP
MIKASA
FUJI
SHIKISHIMA
ASAHI
KASUGA
NISSHIN
IDZUMA
IWATE
ASAMA
TOKIWA
YAKUMA
ADZUMA
TAKEN BY RUSSIAN SHIPS IN FORMATION
" " " " OUT OF
" " JAPANESE MAIN SQUADRON
" " " ARMOURED CRUISER SQUADRON WHEN SEPARATED FROM MAIN SQUADRON
YARDS.
EXCEPT FROM 3.40 TO 4.15 WHEN IT ALTERNATED 0 AND 16 KNOTS

controlled efficiently only from elevated platforms on the masts (about 100 feet from the water), and as funnels cannot be made high enough to carry the smoke over these platforms they must be made so low that the smoke will not reach them. It is for this reason that experienced gunnery-officers now recommend short funnels—and I believe that such funnels will be a feature of our new designs.

Concerning the advisability of building all-big-gun ships, that is, discarding all smaller guns (except torpedo-defense guns) and designing the ships to carry the maximum number of heavy turret guns, these alone to be used in battle against other ships, I think it could be clearly shown that Captain Mahan is in error in concluding that it would add more to our naval strength to expend the same amount of money that the big ships would cost, for smaller and slower ships, carrying the usual intermediate guns (6-inch, etc.); and that, as in the question of speed, this error is due to the fact that much important information concerning the new methods of gun-fire was not considered by the author in preparing his article.

NOTE.—Unfortunately, these methods of gun-fire cannot at present be specifically explained in a published article, as this would involve a discussion of our methods of controlling our ships' batteries and bringing our ships into action with an enemy.

I may, however, assure the reader that, from the point of view of the efficiency of gun-fire alone, it would be unwise ever to build a man-of-war, of any type whatever, having more than one calibre of gun in her main battery. In other words, it may be stated that the abandonment of mixed-battery ships in favour of the all-big-gun, one-calibre ship was directly caused by the recognition of certain fundamental principles of naval marksmanship developed by gunnery officers.

Therefore, we have but to decide what the calibre for each class of ships should be, a decision which should present no special difficulty, provided it be first determined how we are to defeat the enemy—whether by the destruction of his ships (by sinking them or disabling their guns), or by the destruction or demoralisation of their *personnel*.

In this connection the following facts should first be clearly understood, namely:—

1. Turrets are now, for the first time, being designed that are practically invulnerable to all except heavy projectiles. Instead of having sighting-hoods on the turret roof, where sights, pointers, and officers are exposed to disablement (as frequently happened on the Russian ships) there will be prismatic sights, projecting laterally from the gun trunnions, through small holes in the side walls of the turret, and the gun-ports will be protected by 8-inch armour plates, so arranged that no fragments of shells can enter the turrets.

2. On the proposed all-big-gun ships the heavy armour belt will be about 8 feet above the water-line and extending from end to end. The conning-tower, barbettes, etc., will be of heavy armour; and there being no intermediate battery (which could not be protected by heavy armour, on account of its extent), it follows that in battle all of the gunnery *personnel*, except the small, single fire-control party aloft, will be behind heavy armour, and that, therefore, neither the ship or her *personnel* can be materially injured by small calibre guns.

Considering, therefore, that our object in designing a battle-ship is that she may be able to meet those of our possible enemies upon

at least equal terms, it seems evident that it would be extremely unwise to equip our new ships with a large number of small guns that are incapable of inflicting material damage upon the all-big-gun, one-calibre ships of our enemies, or upon the *personnel* manning their guns.

Captain Mahan states that it has long been his opinion that the so-called secondary battery is really entitled to the name primary, because its effect is exerted mainly upon the *personnel*, rather than the material of a vessel. I believe that it can be shown that this opinion is based upon certain mistaken assumptions in regard to the efficiency of these guns. But in order to avoid possible confusion, let me first state that Captain Mahan uses the term "secondary battery" to indicate guns of "6 to 8-inch," whereas our present official designation of the various classes of guns is as follows:—Heavy guns, 8-inch to 13-inch, inclusive; intermediate guns, 7-inch to 4-inch, inclusive; secondary guns, all those of 3-inch calibre or less.

For example, at 6,000 yards, a 12-inch gun, having an initial velocity of 2,400 feet per second, has an angle of fall of 4·75 degrees, while that of a 6-inch gun, having the same velocity, is 8·50 degrees; and the respective danger spaces, for a target 30 feet high, are 120 and 64 yards.

This illustrates how much more difficult it is to hit with the 6-inch than the 12-inch gun, and makes it clear, I believe, that Captain Mahan is greatly in error in saying that if we determine the number of shots fired by each calibre we may assume a "probability of a proportionate number of hits."

As a matter of fact, Captain Mahan has drawn his conclusions from the "volume of fire" of the different calibres instead of from their volume of hitting, or "*rapidity of hitting*," which is the only true standard of efficiency for all kinds of gun-fire. He has also assumed that the Japanese rapidity of 6-inch fire was about four times as great as that of the 12-inch fire, when, as a matter of fact, it was probably not much more than twice as great. We have, of course, no actual figures, but as we know that 12-inch guns can fire two shots per minute (and with improved loading-gear, this rapidity will be increased), and that 6-inch controlled firing is at the rate of four shots per minute, and as we also know that since 1901 the Japanese have used the most modern methods of training, we may safely assume that the relation between their 6-inch and 12-inch rapidity of fire is about as above stated, though both calibres may be actually less, or more, rapid.

Referring, however, to Lieutenant White's article, page 613, we may form a tolerably fair estimate of the relative *rapidity of hitting* of the 12-inch and 6-inch guns. He estimates that the Japanese fired 1,275 heavy shell (12-inch) and made 250 hits, or 19·6 per cent., which was good shooting, considering the long ranges and the unfavourable weather. As for the "90 odd secondary guns" (Captain Mahan's estimate), if we assume that, on an average, each fired 2½ times as many shots as each 12-inch gun, the total number of shots was 16,875 (2·5 times 75 times 90). If they had made a "proportionate number of hits," or 19·6 per cent., they would have scored 3,307 hits, or about 13 times as many as the 12-inch hits, which we know they did not make.

Unfortunately we cannot obtain the exact figures, though we can make an estimate that will be close enough to show the com-

parative hitting capacity of these guns. For example, the "Orel" "was struck 42 times by 12-inch shells and over 100 by 6-inch and 8-inch shells." She was fourth in the line at the beginning of the action, and second at the end, therefore, she at no time received the brunt of the Japanese fire, which was directed principally at the leading vessel. This accounts for the comparatively small number of 12-inch hits that this vessel received. We know that after her guns were disabled, she was pounded by minor cruisers, having 6-inch and 8-inch guns, and that at one stage of the action (2.55 p.m.) she sustained the fire of six armoured cruisers at a range of less than 5,000 yards. We may, therefore, fairly conclude that she received more 6-inch and 8-inch hits than any other vessel.

We will assume, however, that the "Suvaroff" received as many. This vessel was fearfully exposed, first at the beginning of the action, and again at 3.40 p.m., when she sustained the concentrated fire of 12 battle-ships and cruisers, which accounts for her being "struck over 100 times by 12-inch shells alone." Assuming, therefore, that the "Alexander III.," "Borodino," and "Osliabia" each received fifty 6-inch and 8-inch hits, we have a total of 350 hits out of 16,875 shots, or 2·1 per cent. That is to say, they fired 50 pounds of the smaller projectiles for every pound that hit, whereas they fired only 5 pounds of 12-inch metal for every pound that hit—which accords with the law that we have deduced from our target practices, namely, that the smaller the gun the more projectiles you must waste to make a hit; but as the Japanese battle-ships and armoured cruisers carried these guns they were of course justified in firing them—as best they could without diminishing the rapidity of the 12-inch guns. They did not, however, fire any of their small guns—those less than 6-inch—because to do so would have caused too much "interference" with more important guns; though the "hail" of small projectiles, that is so popular in newspaper accounts, would have been very effective—if the shots had hit.

Let us now consider what would have been the probable effect if the designers of the Japanese battle-ships had installed as many 12-inch turret guns as possible in place of the 40 small guns. They could doubtless have mounted one turret forward and two turrets aft on the centre line, or *vice versâ*, thus increasing the heavy broadside fire by 50 per cent., that is six 12-inch guns instead of four. The result would have been 125 more 12-inch hits. Similarly, if the cruisers had been designed to carry heavy guns only, they could doubtless each have mounted at least four heavy turret guns of, say, 10-inch or 11-inch calibre, thus substituting 32 heavy turret guns in place of all of their 6-inch and 8-inch guns. The result would have been 500 more heavy-gun hits which, added to the 125 additional hits made by the battle-ships, make in all 625 heavy-gun hits in place of the 350 hits by 6-inch and 8-inch guns.

In other words, if the Japanese vessels had been designed in accordance with the principles of modern gun-fire (had been all-big-gun ships), their fleet would have developed a greater rapidity of hitting with heavy guns (875 hits) than it actually did develop with 12-inch, 8-inch, and 6-inch guns (700 hits)—and this for the simple reason that, at long ranges, the hitting capacity of their heavy guns was 19·6 per cent., while that of the small guns was only 2·1 per cent. Moreover, as a matter of fact, a fleet having but one calibre of heavy guns on each vessel, would have been able to make still more hits

in a given time, because their fire-control officers would not have suffered from the "interference" (delay) caused by the more numerous discharges of the smaller guns.

Thus we see that, at modern battle ranges, an all-big-gun fleet will actually deliver a greater *volume of hitting*—a greater number of hits, twice the weight of metal hitting, and twice the weight in bursting charges—than a fleet of mixed-battery ships of the same nominal power.

As for the comparative moral effect of the explosion of 12-inch and 6-inch shells, it seems to me that when we compare the difference in weight of the bursting charges (that of the 12-inch is 38 lbs. while the 6-inch is only 4 lbs.) and the difference in the strength of the walls of the shell, there can be no doubt that the moral effect of the former is very much greater than that of the latter.

As reliable evidence of this effect I may cite the testimony of Captain Semenoff, as reported editorially in the *Boston Herald* of 3rd September, 1906.

"He appears from his statements to have occupied the position on the Baltic fleet of a trained observer having no official duties to perform, but simply to make notes, and from shortly after noon on the 27th of May until 7.40 p.m., when, in consequence of wounds, he was compelled to abandon his post, he had nothing to do but to watch and record the events of the battle, ... as seen by him from the rear bridge of the battle-ship "Suvaroff," Admiral Rodjestvensky's flag-ship."

"After fire had been opened between the combatants, Captain Semenoff was struck by the fact that the 4-foot shells (12-inch) of the Japanese invariably burst on hitting the water, but the moment they obtained the range that the effect of their fire was terrific. A young lieutenant came up and asked him if this recalled his previous experience of 10th August, at which time the "Czarevitch" was hit nineteen times by heavy shells in the course of several hours' fighting In order to keep up the courage of the inquirer, Captain Semenoff said, 'Yes,' but his real opinion was that he had never seen or imagined such accuracy of fire, the shells coming one after another without interruption, and hitting so frequently that he could not count the number of hits. (This was doubtless at 1.55 and 2.30 p.m., when practically the whole of the Japanese fire of 12 ships was concentrated on the "Suvaroff."—Wm. S. S.). The force of their explosion was so great that it seemed to him that mines were exploding under the deck or against the ship's side." . . . "At 3.20 p.m., about an hour and a half from the time the first gun was fired, Captain Semenoff was obliged to record in his note-book that the battle was lost."

If they were 6-inch shells that made Captain Semenoff think that "mines were exploding," it is probable that 12-inch shells would have impressed him as being earthquakes, and that he would accordingly have made special mention of the fact.

If it be admitted, from a consideration of the necessities of modern gunnery, that it would "be unwise ever to build a man-of-war, of any type whatever, having more than one calibre of guns in her main battery," and if it be admitted that the heavier the shell the greater the percentage of hits, and the greater its effect in disabling ships and demoralising their *personnels*, it is evident that these guns should be of the smallest calibre that will do the work required,

because the smaller the calibre the more ammunition can be carried. As the object of building a battle-ship is that she may meet her possible enemies on at least equal terms, it follows that the calibre of her guns must necessarily be governed by the thickness and character of the armour protection of these enemies. If an 11-inch 50-calibre gun is large enough to answer the purpose it should be adopted.

This is, however, a matter of detail. The essential principle of a ship's battery is, from the point of view of the modern gunnery officer, that all of her battle guns be of the same calibre.

But, it may be asked, if this is true now, has it not always been true? And how can we account for the fact that, until recently, practically all naval officers have favoured ships with two or more calibres of main-battery guns? The explanation is afforded by a former erroneous belief, namely, that it was not considered advisable to increase the number of heavy guns on battle-ships, because the greater the calibre of the guns the less their hitting capacity, due to the weight to be handled in aiming, etc. While this may have been true to a certain extent during the time when most Navies paid practically no intelligent attention to shooting, it ceased to be true as soon as the present competitive system of training developed the real hitting capacity of these guns, thus reversing this supposed law and showing that the true law was, as should have been recognised, in perfect accord with the ballistic properties of the various calibres.

Referring, now, to a point previously indicated, but not explained, I beg to invite special attention to the tactical advantage that we shall gain by having battle-ships of large displacement—an advantage which appears to me so great as entirely to out-weigh all of the alleged advantages of numbers, mentioned by Captain Mahan. This may best be illustrated by contrasting the tactical qualities of two fleets, one of large vessels and one of small.

Before doing so, however, it may be well to state my understanding of the principal tactical qualities that are desirable in a fleet. These are:—

1. The compactness of the battle formation.

2. The flexibility of the fleet as a unit, that is, its ability to change its formation in the least possible time and space with safety to its units.

For example, suppose two fleets of eight vessels each, composed of ships that are alike in all respects, and suppose their *personnel* to be equally skilful, with the exception of the Commanders-in-Chief, whose difference in energy and ability is such that one fleet has been so drilled as to be able to manœuvre with precision and safety while maintaining one-half the distance between its units that the other fleet requires.

This is putting the extreme case, but it shows:—

1. That the short fleet, being about half the length of the other one, can complete certain important manœuvres (such as Admiral Togo performed at 1.55 p.m. and 2.55 p.m.), in about one-half the time and one-half the space required for similar manœuvres of the long fleet.

2. That, when ranged alongside each other, as shown in Fig. 1 (p. 280), the defeat of the long fleet is inevitable, since the rapidity of hitting of the individual units is assumed to be equal, and each of the four

leading ships of the long fleet receives about twice as many hits as she can return, though the eighth ship of the short fleet would suffer a preponderance of gun-fire from the 5th or 6th vessel of the long fleet—the 7th and 8th being too far astern to do much damage, as would also be the case if the long fleet had several more vessels astern of these.

It is because of the principle here illustrated that the constant effort of competent flag-officers is to reduce the distance between the units of their fleets to the minimum that can be maintained with safety under battle conditions; that is, while steaming at full speed, without the aid of stadimeters, sextants, and other appliances that should be used only for preliminary drills.

Doubtless, some flag-officers, by constant competitive exercises in manœuvring may succeed in attaining an interval between ships that is less by 15 or 20 per cent. than that attained by others; but manifestly there is hardly any possibility of much greater improvement in this respect, because the minimum practical interval between ships depends upon their lengths and manœuvring qualities. For example, the German interval is 300 metres from centre to centre, while larger ships, say 400 feet long, require about 400 yards, and those between 450 and 500 feet in length require about 450 yards.

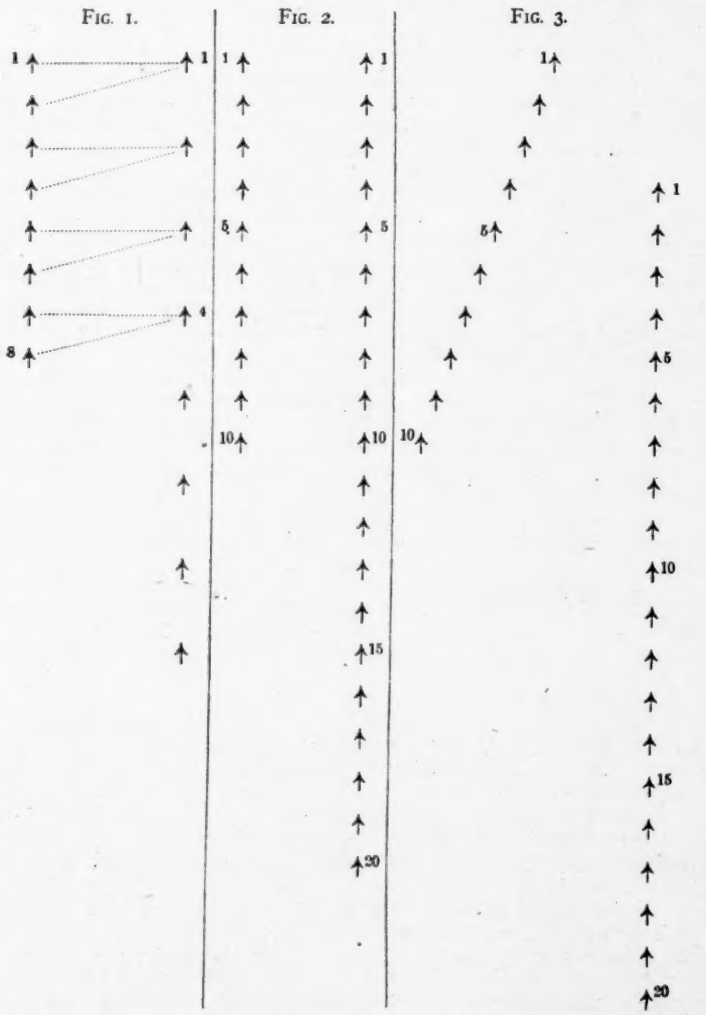
If we accept Captain Mahan's advice and build comparatively small, low-speed battle-ships, while our possible enemies build large, swift, all-big-gun ships, it seems clear that we will sacrifice the enormous advantages of fleet compactness and flexibility, the superior effect of heavy-gun fire and the ability to concentrate our fire—the loss of these advantages to be fully realised 25 years hence, when our enemies have fleets of big ships while we still have those of our present type.

In order clearly to illustrate the above, I will assume a fleet of ten 20-knot battle-ships of about 20,000 tons displacement, each having a main-battery of five 12-inch, double-gun turrets, or a broadside fire of eight 12-inch guns, disposed as in the "Dreadnought" type, that is, one turret forward, one on each beam, well forward, and two aft on the centre line.

Assume the cost of these ships to be 10 millions each, or 100 millions for the fleet, and assume that the same sum of money will build a fleet of 20 battle-ships (though the number would, in reality, be considerably less) of the smaller type, of, say, 13,000 tons and 16 knots speed, each ship armed with two 12-inch, double-gun turrets, or a broadside of four 12-inch guns, and as many of the smaller guns, recommended by Captain Mahan, as can be mounted upon this displacement.

It is further assumed that, as all of the gun-crews of the fleet of large vessels are behind heavy armour, in the 12-inch turrets of new design (heretofore described), neither the crews nor the guns can be materially injured by the intermediate guns of the fleet of small vessels; whereas, on the contrary, the majority of the men composing the gun-crews of the small vessels (all but about 90, for the two 12-inch turrets and their ammunition supply) are behind the armour of the intermediate guns—necessarily light on account of its great extent—and that these guns and their crews must be disabled or destroyed early in an action. It is, therefore, evidently well within the truth to assume that the gun-fire of each large vessel will be more than twice as effective as that of each small one.

If the length of a large ship is 500 feet, and a small one 400 feet, and the interval between centres is, respectively, 450 and 400 yards, it follows that, when in column of vessels, the long fleet (small



vessels) is 3·9 miles long, while the short fleet (large vessels) is 2·1 miles. That is to say, the long fleet (*L*) has a broadside fire of less than 21 big guns for each mile of length, while the short fleet (*S*) has 38 guns per mile—a concentration of gun-fire that is *inherent in the design* of the large vessels, and which no conceivable tactical skill on the part of the small ones could offset.

The tactical advantage of this concentration of gun-fire may be shown graphically by the following diagrams of fleets *S* and *L*.

From Fig. 2, which shows *S* in a position of disadvantage, the rear vessels outflanked, it is apparent that the first nine vessels of the *L* fleet can be destroyed by the first nine of the *S* fleet, since the latter have more than twice the gun-power of the former, while No. 10 *S* can sustain the fire of both 10 and 11 *L*, but not that of 12, 13, and 14 *L*, also. Assuming, however, that the 14th vessel of the *L* fleet is the last one whose fire would be effective against 10 *S*, the rear vessels of the *S* fleet can (by reason of having more than twice the individual gun-fire of their individual opponents) protect themselves by dividing the fire of 10 *S* between 13 and 14 *L*; 9 *S* between 11 and 12 *L*, 8 *S* between 9 and 10 *L*, and 7 *S* between 7 and 8 *L*, thus leaving the first vessels of *L* to be destroyed by twice their gun-power from the first six vessels of *S*; an advantage that is possible only with big ships, and this advantage is of great importance, because when the *S* fleet is taken at a disadvantage it enables each of its vessels to hold her own against at least two of the enemy.

Observe that, even when the *L* fleet is in the advantageous position shown in Fig. 2, no increase in the number of vessels in the *L* fleet can possibly prevent the successive destruction of the leading vessels, since all vessels behind No. 14 are practically out of the action.

Observe, also, that if for any cause the *L* fleet should be restricted in its manœuvres, the *S* fleet, instead of exposing its rear vessels to concentrated fire, as in Fig. 2, would take advantage of its superior speed and assume the position shown in Fig. 3, thus concentrating upon the leading vessels of the *L* fleet its entire gun-fire at a greatly less average range than would be possible if the positions of the fleets were reversed. That is to say, the concentration of the *S* fleet upon the leading vessels of the *L* fleet (Fig. 3) is very much more intense than would be the concentration of *L* upon the leading vessels of *S*.

It would, therefore, appear that, from a tactical point of view alone, the advantages of large vessels are such that they afford greatly increased offensive power when in a position of advantage and greatly increased defensive power when temporarily in a position of disadvantage.

It should also be noted that if, through an accident to the motive power of a large vessel, the fleet speed of *S* were reduced to that of the *L* fleet, the *S* fleet would still be a superior tactical unit, because it is more compact (is shorter and has less units), and can therefore manœuvre with greater ease, and frequently in much less time—an advantage that is in some cases analogous to superior speed.

For example, the time necessary to communicate a signal to the 20 vessels of the *L* fleet, and be sure it is understood, and for this fleet to complete a change of course in column, so as to make a simultaneous movement, would be at least twice as long as that required for the ten vessels of the *S* fleet.

It follows, of course, from the above, that as soon as we build any fast vessels of the large displacement above indicated, and put them in the line of battle with 16-knot ships, we strengthen the fleet much more than if we added as many 16-knot ships as could be built for the cost of the big ships; for though we cannot at once utilise the superior speed of the big ships, we have, nevertheless,

increased the compactness of our fleet, diminished the number of units, and, therefore, for the reasons given above, have rendered it a superior tactical unit—which means that, with equal skill, it would out-manœuvre a fleet of the same cost composed of small vessels throughout.

It should be noted, also, that if we place two only of these large ships at the head of a column of small vessels, each having one-half of the broadside fire of the former, we not only render the fleet more flexible, by shortening it by more than 2,000 feet, but we strengthen our fleet at the weakest point, by concentrating within a distance of 1,800 feet a broadside fire equivalent to that of four vessels occupying a space of 4,000 feet. The above advantages are evidently so great that the alleged value of homogeneity of units is not worth considering.

Concerning the alleged strategic value of numbers, and assuming that Captain Mahan's statement that: "A nation with wide naval responsibilities must have numbers in proportion," means that we would better spend our available appropriations in building small vessels, rather than large ones, in order to facilitate dispersing them over the world; I beg to say that, in my opinion, the above analysis shows very conclusively that a fleet of the large vessels is greatly superior in fighting value to a fleet of the small ones, no matter into how many equal squadrons (of, say, four or more vessels) we subdivide them.

For example, for 280 millions we could build 28 of the "Dreadnought" class, or 40 "Connecticuts," or four squadrons of 7 and 10 vessels, respectively. The former squadron would be 1·4 miles long, with a broadside fire of forty 12-inch guns per mile, and the latter 2·1 miles long, with a broadside fire of twenty 12-inch and twenty 8-inch (neglecting the smaller guns as not effective against any of the armour of the "Dreadnought" class).

The above assumes that a nation with even the widest naval responsibilities would ever deem it advisable to disperse their naval units throughout the world, even in time of peace, thus diminishing individual efficiency, unity of purpose and action, and the indispensable ability to manœuvre large fleets at battle speed. (Rodjestvensky's fleet had been manœuvred but once as a fleet before the battle of the Sea of Japan.)

I had always supposed that the subdivision in time of peace of a nation's fighting units into numerous independent squadrons was due more to personal reasons than to a consideration of the principles of naval training and strategy—which latter seems to be more correctly illustrated by the rapid concentration that takes place when war is imminent. I understand that where the command of the sea is involved, a nation is not deterred from going to war by the state of dispersion of a rival nation's battle-ships, but by the knowledge that he has a certain number; that they possess certain material fighting qualities; and that they have been continuously trained to a high degree of individual and fleet efficiency by concentration in one or more large fleets.

It is for the above reasons, I believe, that the Naval War College has for a number of years consistently advocated all-big-gun one-calibre ships, and the concentration in time of peace of all our heavy fighting ships under one command in the Atlantic, thence to be dispersed in squadrons of the required size to meet the requirements

of the situation, after, rather than before, we know who our enemy is to be.

If it be claimed that it would be better to reduce the speed of the large vessel to 16 knots and put the weight saved into guns, it may be replied that heavy turret guns cannot be mounted to advantage (so as to increase the hitting capacity of the vessel) without very considerably increasing the size of the ship, because the number of heavy turrets that can be placed to advantage is governed largely by the length of the ship—which increases slowly with the displacement. This point is fully discussed in a recent article in a German publication. I do not remember the displacements used by the author to illustrate the principle, but, supposing the ones quoted below to be correct, he shows that if it requires a displacement of 20,000 tons to obtain a broadside fire of, say, eight 12-inch turret guns, you could not advantageously mount any additional turrets on 21,000 or 22,000 tons, but would have to go to 25,000 or 26,000 tons to obtain the necessary space. And, conversely, if you design a 20,000-ton battle-ship for 16 instead of 20 knots, you cannot utilise the weight saved to increase the gun-power by adding 12-inch turrets—as you could by adding a number of intermediate guns.

It is now hardly necessary to state that adding superimposed turrets (by which the number of guns could be doubled, if the weights permitted) does not materially increase the hitting capacity of the ship as a whole, because of the "interference" caused by having four guns in one two-story turret, while it decreases her defensive power by adding to the vertical height of her vital targets.

Captain Mahan characterises the sudden inclination in all navies to increase the size of the new battle-ships (from about 15,000 to about 20,000 tons) as a "wilful premature antiquating of good vessels" . . . "a growing and wanton evil." If these words are intended in their true meaning, the statement is to me incomprehensible. I can understand an individual being wilful and wanton, but I cannot believe that the naval officers of the world could, without good cause, be suddenly and uniformly inspired in this manner. On the contrary, it seems to me that the mere fact of there being a common demand for such large vessels, is conclusive evidence that there must be a common cause that is believed to justify the demand.

This common cause it undoubtedly a common belief that the same amount of money expended for large war vessels will add more to a nation's naval power than the same amount expended for smaller vessels; for it cannot reasonably be assumed that the tax-ridden nations of Europe expend their great naval budgets wilfully and wantonly. Undoubtedly each nation earnestly strives so to expend these sums as to derive the greatest increase of naval power. The same is true in reference to their armies. As the mechanical arts improve, each nation endeavours to improve its war material. When a nation adopts new rifles, it is not a wilful premature antiquating of several million excellent ones, it is a case of *force majeure*—it must adopt them or suffer a relative loss of military efficiency; and it must make no mistake as to the relative efficiency of its weapons. In 1870 the French suffered a humiliating defeat as a direct result of the colossal conceit which rendered them incapable of accepting conclusive evidence that the German field artillery was greatly superior to theirs.

The same law—that of necessity—governs the evolution of battle-ships. As might have been expected, this evolution has, as a rule,

been gradual as regards increased displacement. The exception is the recent sudden increase (4,000 to 5,000 tons) in displacement. This exception therefore needs explanation. As partially indicated heretofore, it was due to a complete change of opinion as to the *hitting capacity* of guns of various calibres. This is now well understood by all officers who have recently been intimately associated with the new methods of gunnery training. These methods have demonstrated this point in such a manner as to leave no doubt in our minds as to the correctness of our conclusions. The rapidity of hitting of the heaviest guns has been increased several thousand per cent., and that of smaller guns about in proportion to their calibre.

(Incidentally, it should never be forgotten that the credit for the inception of the epoch-making principles of the new methods of training belongs exclusively to Captain (now Rear-Admiral) Percy Scott, Director of Target Practice of the British Navy, who has, I believe, done more in this respect to improve naval marksmanship than all of the naval officers who have given their attention to this matter since the first introduction of rifled cannon on men-of-war—nor should we forget that this degree of improvement was rendered possible by the introduction of telescope sights, the successful application of which to naval guns was made by Commander B. A. Fiske, U. S. Navy, as early as 1892.)

As soon as the above facts gained general acceptance in Great Britain and the United States, the evolution of the all-big-gun, one-calibre battle-ship became a foregone conclusion; and the reason for the great increase in displacement, as I understand it, is simply that you cannot build an efficient ship of this class on less than about 20,000 tons, because you cannot mount more than two 12-inch turrets to advantage upon a battle-ship of much less displacement, because the length and breadth are not sufficient.

We were obliged to do the best we could in this respect upon 16,000 tons, because Congress fixed that as the maximum "trial" displacement; but the resulting design is not satisfactory (except in the newspapers), for, though our 16,000-tonner has the same broadside fire as the "Dreadnought" (having four, double-gun turrets on the centre line), she has 50 per cent. less bow fire, and a much lower freeboard—the forecastle and poop decks being, respectively about 18 and 10 feet above the water-line, whereas the "Dreadnought" is an efficient sea-going battle-ship, capable of using her guns while steaming at full speed in any sea in which reasonably accurate aiming could be done. The profile of this ship is that of a scout, her forward turret being mounted upon a high forecastle about 35 feet above the water, and the remaining four turrets about 28 feet. All this, not to mention the fact that the "Dreadnought" is a better gun-platform, has better protection and has a superiority in speed of two or three knots. (The "Dreadnought's" trial speed was about 21·5 knots.)

It would undoubtedly be desirable if we could procure an international agreement that no nation would adopt for its armies a rifle superior to that now used. Similarly, it would be desirable if the displacement of men-of-war could be limited, say, to 20,000 tons. But in the absence of such an agreement, we must keep pace with the increased efficiency in battle-ships as well as in small-arms, otherwise we cannot reasonably expect to win battles. We have, indeed, no choice in the matter, if we are to remain a world power.

However, from the point of view of naval efficiency, we need have nothing to fear from even a still further increase in the size of our battle-ships. For example, referring to the supposed fleet of ten 20-knot ships—the short (*S*) fleet—above described, there can be no doubt that the same sum (100 millions) expended for a less number of still larger ships would produce a superior fighting fleet. For the same sum we could doubtless build eight ships each having a broadside fire of ten 12-inch guns, instead of eight, and one knot more speed. Such a fleet would be 1·7 miles long, instead of 2·1 miles, with a concentration of 48 heavy guns per mile to oppose to the 21 per mile of the long (*L*) fleet (3·9 miles) of small vessels—not to mention the increased superiority of its manœuvring qualities, and the superiority of its protection against both gun-fire and torpedoes. One of the great advantages of a large vessel is that the under-water hull can be so designed that the ship cannot be materially damaged by one torpedo.

From the facts and arguments herein presented, as I understand them I derive the following main conclusions, founded upon what I believe to be the fundamental, elementary principles of gun-fire and tactics:—

1. That, in consideration of the fact that the ultimate object of a fleet is that, in the event of war, we may be able to overcome our possible enemies upon the sea, we should so design our battle-ships that they will at least equal those of our possible enemies in *all* of their fighting qualities—speed, gun-power, height of gun positions, protection, etc.

2. That, subject to the above requirements, it is always desirable to increase the speed a certain reasonable amount.

(Incidentally, it may be remarked that this indicates the advisability of developing maximum speed and minimum coal consumption, by placing all similar vessels in continuous competition in steaming—in much the same manner that we now utilise the competitive principle to develop their maximum gun-power.)

3. That it is always desirable to substitute heavy turret guns, such as 12-inch, for the equivalent weight of the usual intermediate guns, 6-inch, etc. In other words, that the all-big-gun, one-calibre ship affords the greatest possible capacity of effective hitting.

4. That, in order to simplify fire-control and attain its maximum efficiency, all of the main-battery guns of ships of whatever type should be of the same calibre.

5. That, for similar reasons, all of the torpedo-defense guns should be of the same calibre.

6. That very important tactical advantages are obtained by the concentration of many heavy guns on each large vessel of high speed, and by the consequent intense concentration of fleet gun-fire, due to the compactness of the fleet.

7. That the tactical advantages of size, speed and diminished numbers are of much greater importance than any advantages to be obtained from the increased number of smaller and slower vessels that can be built at the same total cost.

In conclusion, I beg to submit the following considerations that do not bear directly upon the relation of speed, displacement and gun-power to effective gun-fire and tactics.

Captain Mahan assumes that the importance now given to long-range fire with heavy guns implies an indisposition to close, which

he assumes would be to the disadvantage of the all-big-gun ships (as opposed to those having numerous intermediate guns), and that history teaches us that this alleged moral attitude is a dangerous one: "that the fleet which has thus placed its dependence on long-range fire has with it assumed the moral tone and temperament associated with the indisposition to close" . . . and "that the navy which, for any reason, habitually seeks to keep its enemy at a distance, in order to secure a preliminary advantage, usually fails to achieve more than a defensive success for the occasion, and in the long run finds itself brought to battle at an unexpected moment, under conditions unfavourable to it, both materially and morally."

Doubtless the above is true in all cases where individual ships are materially equal in force and in protection, and, particularly where the inefficiency of the artillery practically precludes effective hitting (that is, a large enough percentage of hits to be decisive) at any but short ranges. However, the conditions of gun-fire have changed fundamentally with the introduction of high-power guns, and, particularly, with our recently acquired knowledge of these guns and their proper use.

Nelson's ships could not do effective hitting at a distance of about one mile, and the shooting of his enemies at the same range was equally as good, or bad. There was practically no possibility of effective marksmanship at long range, because of the rudimentary design of guns, sights, etc. Protection was practically equal, there being no armour. Hitting was dependent upon short range, and superiority of gun-fire depended almost wholly upon superior rapidity of fire. Collingwood said to his men:—"If you can get off two broadsides in the first five minutes, you will win." (I quote from memory, and may have the figures wrong, but the above is the gist of his remark.)

In order to contrast this with modern methods of gun-fire, I will take the actual case of two actual, similar ships, A and B. At a recent battle practice, while firing under way, at a target 90 by 30 feet, distant not less than 6,000 yards, A made about 40 per cent. of hits, and B made zero. At the previous test, on a short range, marked by buoys, A made about as good a score as B, thus showing about equal skill in aiming and rapidity of fire on the part of their gun-pointers (whose sole duty is to aim while their officers control the fire). Therefore, if these two ships (or a fleet of A's and a fleet of B's) had met in battle, and A, having sufficient speed (and no moral indisposition to close), had at once steamed in to short range, he would have received practically as many hits as his enemy, and if his rapidity of fire had been somewhat less than B's, even for a short period of time (due, say, to an otherwise insignificant accident to his communication system), he would have been defeated; whereas, had he taken advantage of the superior skill of his fire-control officers, and remained at long range (as Admiral Togo did), he would not only have won the battle, but would have done so without material damage to his ships or *personnel* (as in the case of the Japanese), and without danger of defeat through a temporary disability.

If a commander-in-chief knows that his ships are inferior in fire-control, he will of course seek to diminish this inferiority by fighting at short range (as was unsuccessfully attempted by the Russians); but the commander-in-chief of a fleet that is skilful in fire-control,

and who has an indiscriminating disposition to close, appears to me to be out of place as a commander of modern vessels.

Concerning the ships in question—large, all-big-gun, one-calibre ships—I believe it has already been clearly shown that, besides being necessarily superior at long ranges to ordinary battle-ships (having intermediate guns), they are also superior to them at all ranges, because of the superior protection of the big guns and their gun-crews—not to mention the superior hull protection.

In addition to the superior individual and tactical advantages of large vessels, they also possess the following economical advantages:—

1. A fleet of ten 20,000-ton ships, each having a broadside fire of eight 12-inch guns (or 80 in all) would cost about 100 millions.

2. A fleet of 20 smaller vessels, each having a broadside fire of four 12-inch guns (or 80 in all), and the usual intermediate guns, would cost about 120 or 130 millions—though I previously assumed the cost of these fleets to be equal, in order to accentuate the tactical value of large ships.

3. It requires less men to man the main-battery guns of an all-big-gun ship than of a mixed-battery ship. For example, it requires less men to serve the ten 12-inch guns of the "Dreadnought" than the four 12-inch, and sixteen 6-inch guns of the "Missouri."

4. It will require no more men for the "Dreadnought's" crew than it would for the "Missouri's"—if she had a full complement of men (as measured by European standards), which neither she nor any of our battle-ships have.

5. The complement of officers of the "Dreadnought" is not as great as should be that of the "Missouri," or "Louisiana," because the former requires but one fire-control party, while the latter ships require respectively two and three parties, as well as more officers to command the guns.

6. Therefore, assuming 800 men and 20 combatant officers in each ship, it will require 8,000 men and 200 officers for 10 all-big-gun ships, and about 16,000 men and 400 officers for the fleet of small vessels having the same broadside fire.

(Incidentally, it may be remarked that if the money we have expended for the ships recently commissioned and now being completed, had been put into 20,000-ton, all-big-gun ships, we would not now be embarrassed for either men or officers to man them—and would have a stronger fleet.)

7. It will cost nearly twice as much to dock the 20 small vessels as the 10 large ones—and the latter fleet can be docked in one-half the time, which is a great advantage in time of war.

(Captain Mahan notes that the absence of a big ship—for docking, coaling, repairing, etc.—reduces the strength of its fleet more than the absence of a small one, but he neglects to note that with twice as many ships in a fleet there will be twice as many absentees in a given time.)

8. From the above it is clear that the cost of maintaining a fleet of small vessels, having the same broadside fire as a fleet of large vessels (of double the individual broadside fire), will be nearly twice as much as that of a fleet of large vessels of about the same total gun-power.

9. I understand that the cost of maintaining a battle-ship is over one million dollars per year. Therefore, the yearly maintenance of

the fleet of 10 large vessels would cost about 10 million dollars less than that of the 20 smaller ones.

10. The final conclusion is that, for the sum that it would cost to maintain 20 small battle-ships, we could maintain a fleet of 10 large ones, that would be greatly superior in tactical qualities, effective hitting capacity, speed, protection, and inherent ability, to concentrate its gun-fire, and have a sufficient sum left over to build one 20,000-ton battle-ship each year—not to mention needing fewer officers and men to handle the more efficient fleet.

By the above examination, I have attempted to show that Captain Mahan's conclusions are probably in error, only beacuse they are, in my opinion, founded largely upon mistaken facts (as to the battle of the Sea of Japan), mistaken principles of gun-fire, and upon an apparent failure to consider the inherent and very important tactical qualities of large vessels. In my analysis, I have considered only those alleged errors by which I believe that Captain Mahan was mainly influenced, omitting, for the sake of brevity, a number of minor ones that bear upon, but are not essential to, his conclusions.

THE
ORGANISATION OF THE CANADIAN MILITIA.

By Colonel F. G. STONE, R.G.A., p.s.c., Gold Medallist R.A.I.
(formerly Commanding Canadian Artillery).

Thursday, 25th October, 1906.

Major-General Sir G. H. MARSHALL, K.C.B., in the Chair.

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1. *Defence Force of Canada.*—The Canadian Defence Force consists entirely of Militia under the three following headings:—

a. The Permanent Force.
b. The Active Militia.
c. The Militia Reserve.

2. *The Head Quarters'* organisation is based on that of our own War Office; the Minister of Militia and Defence, corresponding to our Secretary of State for War; the Militia Council to our Army Council; and the Inspector General's Branch to that of our Inspector General, except that in this last case executive functions are combined with inspection.

3. *Commands.*—The country is divided into 4 commands, each under a substantive colonel; there are 12 Military Districts under lieut.-colonels, divided between these 4 commands. In addition there is the Halifax Garrison Command.

4. *The Permanent Force* corresponds practically to our Regulars, except in regard to liability for service abroad; it is, however, little more than a nucleus for training the more numerous units of Active Militia; the regiments composing it are styled "Royal," and comprise the following:—

1 Regiment of cavalry;
1 Regiment of mounted infantry;
2 Batteries of horse artillery;
4 Companies of garrison artillery;
2 Companies of engineers;
1 Regiment of infantry;
Army Service Corps, Medical Corps, and Ordnance.

The units of the Permanent Force provide schools and instructors for the Active Militia, and supply the garrisons of Halifax and Esquimault.

5. *The Active Militia* comprises:—

16 Regiments of cavalry and 4 detached squadrons;
24 Batteries of field artillery, organised in brigades, with ammunition columns;
6 Regiments of garrison artillery, and 1 detached company.
4 Field Companies of engineers;
Corps of Guides;
87 Battalions of infantry;
Signalling Corps;
11 Companies Army Service Corps;
16 Field Ambulances.

5A. *Ballot.*—When men are required to organise or complete a corps at any time, either for training or emergency, and there are not enough Volunteers, the men liable to serve are drafted by ballot. All British subjects from 18 to 60 are liable to serve unless exempt or disqualified by law.

The Governor-General may require all male inhabitants capable of bearing arms to serve in case of a *Levée en masse.*

The male population liable to serve is divided into four classes:—

1st Class—Unmarried or widowers without children, ages 18 to 30.
2nd Class—Unmarried or widowers without children, ages 30 to 45.
3rd Class—Married or widowers with children, ages 18 to 45.
4th Class—45 to 60.

Period of service in the Active Militia is 3 years.

6. The units composing the Active Militia are of two distinct kinds:—

a. Rural Corps.
b. City Corps.

Rural Corps practically correspond with our own Militia; their training is, however, confined to 16 days in the year, and this is usually curtailed to 12.[1] There is no preliminary drill for recruits, neither is there any Permanent Staff. Training is carried out in camps of exercise assembled in each command, and is adapted to the limited possibilities which nine working days will allow.

A Rural Cavalry Corps is almost identical with our Yeomanry.

City Corps correspond very nearly with our Volunteers. Nearly all the garrison artillery and a considerable proportion of the cavalry and infantry are "City" Corps.

7. As previously stated, the Permanent Corps forms a sort of nucleus of "Regulars" for the training of the Active Militia of all arms. Schools are maintained at the various headquarters of the Permanent Corps, for the instruction of the officers and non-commissioned officers of the Active Militia; certificates are granted at these schools, which qualify the holders for the various positions which they desire to obtain.

A great impetus was given to these schools by Major-General Ivor Herbert, by sending officers to England, to be attached to the various branches of the service at home, pass through courses of instruction, and pass the qualifying

[1] The statutory limits are 12 days minimum, and 30 days maximum.

examinations for promotion under British Regulations; this system was also extended to selected non-commissioned officers, more especially in the artillery; and Major-General Hutton continued to carry out the same system with the Medical Staff and Army Service Corps, the former of which especially bears active testimony to the value of the good seed thus sown.

8. *Mobilisation.*—A scheme of mobilisation, based on the strategical requirements of the country, was drawn up by Major-General Ivor Herbert and continued by Major-General Hutton in 1899, forming a sound framework into which the various training and administrative staffs, units, and departments should be fitted in, as the development of the military organisation progressed; this scheme provides for a considerable reserve to feed, and, if necessary, augment the troops in the field and in the garrisons (to be raised under regulations to be framed by the Governor-General in Council).

8A. *Establishments.*—The basis of the mobilisation scheme consists in two establishments for the various units, viz.:—

a. *Peace training establishments*, which include all officers and non-commissioned officers of corps, and a proportion of rank and file.

b. *War establishments*, which constitute the *1st line of defence*, and further provide sufficient officers and non-commissioned officers to form the nucleus of a *2nd line of defence*. Thus each regiment of infantry will have a field officer, and each company a captain and subaltern, sergeant, corporal, and 2 men as a nucleus, in excess of the numbers required for the establishment of a battalion in the field. These nuclei, on mobilisation, immediately start training a 2nd battalion, which will be the duplicate of the 1st battalion in the field.

Without counting the Corps of Guides, North-West Mounted Police, and Departmental troops, the following are the peace and war establishments of all arms:—

Peace, 45,338.
War, 103,616.

All the officers and non-commissioned officers of the 1st line are available for peace and war. The men are divided into two classes:—

a. Those engaging for peace and war; these are liable for training in peace.

b. Those engaging for war only.

The greatest development since that date has been the taking over by the Dominion Government of the defences and garrisons of Esquimault and Halifax, necessitating an augmentation of the Permanent Force, which has not been an easy matter to carry out, owing to the difficulty of recruiting in a country whose material prosperity is advancing by leaps and bounds.

9. *Staff.* — The commencement of a trained staff was inaugurated by Major-General Ivor Herbert and extended by Major-General Hutton in 1898, by the establishment of a staff course under the auspices of Colonel Kitson, commandant of the Royal Military College at Kingston; followed up by a staff tour, and immediately after by the annual camps of training, at which the officers who had been under instruction were employed in various staff capacities.

10. *Departments.*—The departmental services which were practically non-existent 10 years ago, are now steadily growing in numerical strength and in efficiency; the conversion of the Civil Stores Department into a Militia Ordnance Department was a further step in the right direction.

11. *Civil Administration.*—The Canadian Militia has been fortunate during these latter years of progress, in having continuity in the Civil Administration, under the Prime Minister, Sir Wilfred Laurier, the Minister of Militia, Sir Frederick Borden, and the Deputy Minister, Colonel Pinault.

12. *The Military System* is, in one important respect, far superior to that of our American cousins, inasmuch as it is administered by one central authority for the whole Dominion; thus uniformity and cohesion can be secured; whereas, in the States, each State has entire control over the equipment, establishment, organisation, and employment of its own Militia. This remark, of course, does not refer to the United States Standing Army.

13. *The Training* of the Active Militia has already been briefly alluded to; I will now deal with it more fully.

The training of the City Corps corresponds closely with that of our Volunteers, and that of the Rural Corps with the training of our Militia. Thirty days is the maximum period allowed by statute, but twelve days is the normal period. The conditions are: enrolment for three years, and payment at the rate of 2s. a day for each man, and 4s. a day for each horse.

The cavalry and field artillery bring their own horses into camp, and in this lies the secret of the really extraordinary progress which is made in so short a time.

A cavalry regiment (Rural Corps) almost invariably carries out its training in a camp with other troops, and great progress has been made in carrying this training out on business lines. The system of training inaugurated by General Herbert and extended by General Hutton, both for cavalry and infantry, was a daring innovation, the success of which, however, more than justified it; it amounted in principle to the application of common sense, and the adaptation of the means available to the end in view; it was evident that the time was too short to learn everything, and consequently, the progressive training was entirely subordinated to the achievement of a fair degree of efficiency in *essentials*; drill was carried out in single rank, the formations being of the simplest character, but the mobility of the *Brigade* was secured, and the horizon widened beyond that of ceremonial and drill field evolutions.

As regards the infantry, our Militia has nothing to gain by borrowing anything from Canada; the constitution of the two forces is very similar, but our system of instruction and training is more advanced, and occupies a far longer time than it does in Canada. The cavalry, as already stated, corresponds—in the case of Rural Corps—very closely with our Yeomanry. There is no counterpart in Great Britain to the City Cavalry Corps in Canada.

14. It is in the field artillery that Canada shows the most remarkable success, for it is essentially in this arm that the greatest difficulties are necessarily met with in obtaining anything approaching efficiency.

Each field battery usually has its headquarters in one of the principal cities, such as Toronto, Ottawa, Montreal, Kingston, Quebec, Hamilton, St. Catherine's, Winnipeg, Newcastle, etc. At the Battery

Headquarters there is a drill hall, with more or less suitable accommodation for guns, wagons, harness, clothing, and equipment generally; these drill halls are provided partly from local and provincial funds, and partly from a Government grant; in many cases they leave much to be desired, but the correct principle is there, and as funds can be found, they are devoted to the most pressing cases—or possibly, to the cases which are most pressed! The majority of the officers, non-commissioned officers, and gunners will usually belong to the City, and voluntary drills will be carried out during the greater part of the year; the number and value of these drills depending on the zeal and energy of the battery commander; lectures and theoretical instruction are given, and the drill hall in many instances partakes of the character of a professional club or meeting place, and forms quite a feature in the local life.

The drivers come principally from the country districts, and are usually farmers who bring a pair of their own horses into camp; there are, however, many drivers who live in the cities and bring a pair of the horses with which they are working every day.

The time of year for the training must obviously fall in with the dull time in agricultural work.

In a few cases it may be desirable to adopt a system of outlying sections—a section consisting of a subaltern officer and two guns, together with the entire *personnel* and *matériel* belonging to those guns. An energetic subaltern of good position in a country town, can relieve the pressure on Battery Headquarters immensely, if he assumes the entire administration and instruction of his section during the non-training period; great local *esprit-de-corps* is aroused, and a thoroughly wholesome tone infused into the local life; the drill shed becomes a desirable place of resort in winter evenings, and the best elements of the working population are united in a common object. The section can be mobilised for training at its local headquarters, and proceed thence to Battery Headquarters, or join the battery at the training camp, according to circumstances.

The fact of the horses being brought into camp in pairs, by their owners, greatly facilitates what would otherwise prove one of the principal difficulties to be overcome in a Militia Field Artillery; the horses settle down to their camp life, and their team work in the field with wonderful rapidity; the drivers, too, have to get accustomed themselves to artillery driving, as well as train their horses to it, and the visible progress made from day to day has to be seen to be believed.

Battery commanders, who really take trouble over the organisation and administration of their commands, have little difficulty in getting about 70 per cent. of horses which have been through a previous training, and this is, of course, a most valuable factor for the success of the training.

The system of training inaugurated in 1900 was to take about one half of the field artillery, two brigades at a time, to a practice camp situated on land leased for the purpose; the other half carried out training in the various district camps, in the commands to which the batteries belonged. The land then acquired was only four miles long by one and a half wide, and has been superseded by a really splendid practice and manœuvre area at Petawawa, recently acquired by the Dominion Government for the purpose, and measuring about 10 miles square.

The work in the practice camp had to be carried out in nine working days (the efforts to get this increased to the statutory limit have since been successful); every officer was on parade at 6 a.m. daily, and did not finish his work until 6 p.m.; the first five days were devoted to drill and instruction of the battery, the last four days to simple movements in brigade, manœuvre, reconnoitring, and gun practice. At manœuvre active service conditions were always insisted on, one brigade being worked against another in accordance with a tactical idea. Gun practice was carried out in accordance with Okehampton ideas, including surprise targets, and the advance to successive positions in accordance with a tactical scheme.

Every evening the work of the day was discussed and criticised, and instruction given in connection with the work for the next day.

The inspection of the batteries was carried out during the training, and embraced the whole curriculum of the instruction, including practical questions to every officer, and non-commissioned officer; marks were given for fire discipline, gun practice, administration, cleanliness of camp lines, condition of harness and equipment, clothing, drill, etc.

The time was, however, all too short for what was required; in fact, there was not time to practise what had been taught, and batteries left camp just as they were getting into the swing of really useful work.

I have used the past tense in speaking of this camp of instruction, as the system described represents how the present century was begun; the improvement since then has doubtless been continuous and progressive, and with the great advantages conferred on the Militia by the acquisition of Petawawa, a great impetus will be given to combined as well as to regimental training, but a period of 16 days must be granted in the cases of the field artillery if the Government wishes to get a *quid pro quo* for their outlay.

The system adopted this year has been to send lieut.-colonels and adjutants of brigades, and detachments from batteries, consisting of all the combatant officers, battery staff sergeants, 4 Nos. 1, 8 layers, and 8 gunners, to the practice camp; the guns, horses, and the remainder of the *personnel* being formed by the Royal Canadian Horse Artillery; this is a compromise to save the expense of sending brigades entire to the practice camp, and cannot be regarded as satisfactory except from the point of view of getting the greatest possible value out of the limited amount granted for training; no doubt, next year the camp will be more of a training camp, and less of a meeting for competitive prize firing. There are, of course, arguments in favour of this system, which enables the most important part of the *personnel* of every battery to carry out practice under approximately service conditions, whereas neither the time nor the money could be found for the training of entire batteries at Petawawa for the full period, for more than half the number in the same year.

Prizes, moreover, form a very great factor in encouraging the Militia batteries to strive for efficiency, and the desirability of giving every battery a chance of winning prizes under the same conditions, every year, weighs against the arguments for giving a more thorough training all round to entire units every second year; moreover, the distances to be traversed by some of the batteries before they could reach the camp at Petawawa, are necessarily a very serious consideration, both in respect to time and money, and in some cases

also, in respect to the supply of horses, as many owners would not bring or hire out their horses, if they were required to make long journeys by road or rail.

It cannot be supposed for a moment that such training as has been described could create or maintain a field artillery capable of competing with Regular artillery; it is remarkably good considering the necessary limitations under which it is trained, and would certainly be fully 50 per cent. better if twice the time and twice the amount of ammunition could be afforded, and the training carried out by entire brigades and batteries; the tactical training with other troops is also a *sine qua non* of efficiency in the field. It is clear that this fact is fully realised, both by the Minister of Militia and the Chief of the General Staff, and that when the initial difficulties in starting a great camp of instruction, such as Petawawa, on a new site, have been overcome, great developments in the training may be expected.

15. *Equipment.*—The field artillery is armed with the 12-pounder B.L. gun, which is about to be replaced by the 18-pounder Q.F.; there are also two batteries armed with howitzers.

16. Until recently there has been no parallel in England to the Canadian Militia Field Artillery; but the creation of the Lancashire Field Artillery Brigade has now given us a somewhat similar organisation. This Militia Brigade has done remarkably good work under the intelligent guidance of zealous Regular officers, but the limitations to attaining the highest degree of efficiency in any Militia Force, when dealing with such a complex subject as artillery, apply to Great Britain and Canada equally; and as Mr. Haldane said, when speaking at Haddington on the 28th September, 1906: "We need more good artillery; *nothing short of the best will do.*"

17. *Garrison Artillery* consists of Coast Defence, heavy and siege companies, the two latter carrying out practice at Petawawa. The heavy batteries will shortly be armed with the 60-pounder B.L. gun. The units of the Active Militia which constitute the Canadian garrison artillery (this does not include the four Permanent Companies of Royal Canadian Artillery), correspond almost exactly with our Volunteer Artillery.

18. *The Canadian Artillery Association* is a very influential body, which has, for many years, exercised a strong influence on the progress of the artillery. The Quartermaster-General, Lieut.-Colonel Macdonald, has happily termed it "A Parliament of Artillery, where we discuss what is done by those over us, and endeavour to bring to bear on them our views of what we think best for the general interests of the Artillery."

18A. *The Military Spirit.*—The war in South Africa marked a new epoch in the life of the Canadian Militia. Up to that time there had been two parties in Canada: One with strong Imperial instincts, ever urging efficiency and thoroughness in the administration of the Militia as an essential and, indeed, fundamental condition to the self-respect and influence of such a powerful partner as Canada in the family of young nations which form such an important part of the British Empire. This party enthusiastically advocated offering Canadian troops to the British Government to take part in a war, which, though it in no way affected local interests, appealed forcibly to the Imperial instinct which unites British Colonies all over the world by strong family ties to repel aggression directed against any member of that family.

The other party deprecated taking any part in what it called a purely British quarrel, in which Canada had no concern. It must be remembered that at the time there was no idea that Great Britain would really require Colonial help, and the question was discussed on purely academic grounds at the outset. This party claimed to be equally patriotic with the other, but argued that if the step of offering Canadian troops in such a case were once taken, Great Britain would in the future think that she could count on a Canadian contingent for any war in which she might be engaged. This party, or at any rate a portion of it, resembled the old Manchester School in England, with its inveterate hatred to what it called "militarism"; to them any honest attempt to make the Militia a really efficient national force smacked of "militarism," and was to be discouraged accordingly. How aptly Mr. Haldane's recent remarks at Haddington (28th September) would have come in at that time! Mr. Haldane said: "People say about the Liberals: 'How can you go in for improving the Army without imbuing people with militarism?' From that point of view I dissent altogether. The Government hold that while we have got an Army it is the duty of the nation to make it as efficient as possible, to remove the abuses, and to organise it to the utmost of our power, in accordance with sound principles. . . . But so far from militarism being the result, there is nothing which has a more steadying and sobering influence on the minds of the population than to be brought into closer acquaintance with the Army and with the necessary preparations for war." Surely these words should be written up in letters of gold in every home in the British Empire.

But the opposition to the so-called militarism did not give way to any such reasonable argument as that of Mr. Haldane's, just quoted. It gave way before the overpowering wave of patriotic feeling which sprang full grown into existence while the question of offering a contingent from Canada was still being discussed on academic lines; and although parties were strongly divided, it will ever be to the honour of those who originally opposed the idea, that when once they realised that it was the wish of Canada to take her part in the war, not only did opposition cease, but those who had been in opposition joined hands openly with those who had all along advocated the offer of a contingent, and thus presented to the nations of Europe a Canada united on an Imperial issue of the very highest importance. Truly, a grand example which we could well afford to follow in England.

19. *Conclusion.*—No one can be associated with the Canadian Militia, as I have been, without being deeply impressed with the intensely national character of the Force; the Militia enters into the daily life of the Canadian citizen and farmer; the *personnel* of the Militia is composed of men who have a stake in the country. "Our officers," said Sir F. Borden, "are men of affairs, who are busily engaged in the daily walks of life, securing the means of livelihood for themselves and their families; they are not men of leisure as a rule; they have to learn what they can, and still carry on their various pursuits in life." Such men as these are in earnest in their undertakings, and to work with them and for them, is a gratification of the Imperial instinct which has a unique charm of its own. I count it as a special honour that my name is still retained in the Canadian Militia List as an "unattached" officer, though my official connection with Canada has been severed for some years. I learnt many things

in that country, not the least of which was the true signification of the word "Patriotism."

Colonel Ivor Herbert, C.B., C.M.G., M.P. :—I feel it a great honour to say the first word on this occasion after the lecture we have heard. As one who has had considerable experience of the Canadian Militia, I desire to congratulate the lecturer upon the manner in which he has brought before the audience to-day the service to which he and I have both had the honour to belong. Speaking now as an officer of the Canadian Militia, to which, I am happy to say, I still belong by special action of the Canadian Government, I desire to say that one of the difficulties under which we have suffered in the past was the want of knowledge in this country concerning that force. One of the important improvements made in late years is, that officers of the position and experience of the lecturer and others have been connected with the Canadian Militia, and have been able to learn for themselves the national peculiarities of that force. We have suffered because people at home did not realise that there are special national idiosyncrasies connected with that organisation. It may have sprung up, as the Canadian Colony itself has sprung up, from the British stock, but circumstances have made a difference in the lives of the people. Consequently, there is a very marked national character that runs through everything in Canada, and it shows itself in particular in connection with that force which is so highly prized, and forms such a very active element in the lives of the people of the country. As the general officer commanding, I experienced the difficulties arising from the fact that the Canadian Militia was completely isolated from the other branches of the Imperial Force. Therefore, during the time I was in Canada—a period of five years—I laboured to bring the two forces more into personal contact, by the manner which the lecturer has kindly recalled, of sending officers over here for instruction. But I also went further than that. I said :—If we are to have really an Imperial force, we must have all the parts of that force interchangeable. Officers, whether serving in the Canadian Army or in the Australian Army, or in forces maintained by any other of our self-governing Colonies, must be put upon an equality with British officers, and made interchangeable with them in all the duties which they may be required to perform for the service of the Empire. Similarly units of the Colonial forces must be made interchangeable with British units. That was my idea of making a truly Imperial Army. We always speak of the "*Imperial forces*" as distinguished from the "*Colonial forces.*" I think the true way to look at the matter is to regard it as the Imperial Army, an organisation which should embrace the whole, irrespective of the origin of the parts, and that all the parts of that Army should be made interchangeable. That conception was not understood or appreciated in this country before the South African War. We have advanced somewhat since then, to the great advantage of the Empire. I may mention, as an example, that in discussing this very question of interchangeability of units in the year 1895, of bringing Canadian troops to serve in this country, and of sending British troops to serve in Canada, there was an insuperable objection raised on the grounds of alleged complexity in accounting. I venture to believe that I gave the solution of the difficulty, but the objection was maintained. A few years afterwards we had a practical test, because Canada, Australia, New Zealand, and all parts of the Empire were sending the forces which they maintained

to serve side by side with our men in South Africa. I was then called upon in South Africa during the progress of the war to explain and carry into effect the identical system which I had advocated in 1895, in order to overcome the practical difficulties of accounting which arose from the various scales of emolument prevailing in the different forces. Much friction would have been avoided had the principle been accepted in 1895. I merely mention this fact to show how important it is that this question of unifying the Imperial forces should be taken up in times of peace, so that when a great emergency arises, as it did arise a few years ago, and all our kinsmen in the distant parts of the Empire come to our assistance, we shall have arrangements prepared beforehand to overcome these difficulties which are a source of friction, in time of war when friction in itself is a cause of danger. I will not prolong my remarks more than to say that the lecturer will excuse me taking up his *ipsissima verba* when he said that we have "nothing to gain in England by borrowing from Canada in regard to the infantry militia." I perfectly understand what he means, and I do not wish to dispute it, but I will mention one little experience of mine in which I think Canada is ahead of us. It illustrates the way in which the whole country supports its Militia. The example I desire to quote is that of a company of a battalion of French Canadian Militia which I was inspecting, and in which I found six members of the same family, four of whom were serving in the ranks as privates, while one was the captain, and I had the honour before I left that camp of permitting him to bring one of the junior members of his family to be enlisted as a bugler in the same corps, so that seven of one family were serving in one company of a battalion. I call that a striking mark of the manner in which the Canadian Militia is maintained as an organisation which touches the lives of the people. In that instance, practically the whole family went out to go through its training in camp. I do not think we see that sort of thing in this country, and I regret it very much. I wish we could see rather more of that spirit in this country. I think by being brought in personal contact with our Colonial forces we gain an insight into the feelings and lives of those who form a very important part of the Empire at the present time, and I am perfectly certain that closer intimacy can only add to the respect and affection with which the different branches of His Majesty's Imperial forces regard each other all over the world, and to the elimination of causes of friction and misunderstanding.

Colonel F. D. V. Wing, C.B. (Commanding Lancashire Field Artillery Militia):—I am sure the lecture has been of very great interest to all of those present, especially to those who are interested in the Militia forces of England. I desire, in the few remarks I have to make, to specialise a little and to confine my comments to the Militia Field Artillery. Colonel Stone has referred at some length to the Militia Field Artillery of Canada, and I propose to refer to the Militia Field Artillery of England, as I have the honour to command the only Militia Field Artillery in England. For the purposes of comparison, and in order to consider the possibility of increasing the force of English Field Artillery Militia, I may, perhaps, briefly describe the organisation. It is purely a Militia corps, and in that way cannot quite compare with the force which Colonel Stone has described to us. The Militia Field Artillery of Canada, I take it, are more like the Volunteers of England, who can go in for constant training at their own homes. The Lancashire

Field Artillery was formed in 1901, and consists of three batteries forming the usual brigade. At the commencement, the colonel, the adjutant, and the three battery commanders were all Regular officers drawn from the Royal Artillery. The battery commanders, as their time expired, have been replaced by Militia officers, and for the last three years one of the batteries, and for the last two years two of the batteries, have been officered entirely by Militia officers; so that the system of field artillery batteries, officered entirely by Militia officers, has been fully tried and proved in every way satisfactory. In that respect I would call attention to Colonel Stone's remark about the Militia brigade which I am referring to being under the intelligent guidance of zealous Regular officers. They gave their services when it was started, but now it is officered entirely by Militia officers. The last battery commander has just been promoted, and, as far as I know, he may be replaced by a Militia officer. The only Regular officers left are myself, as colonel, and my adjutant; the battery officers are entirely Militia officers. As far as the remainder of the *personnel* goes, there is a permanent staff of about 120 men, which, when the batteries go out to train, allows of about forty Regulars per battery. The proportion is, roughly, one Regular soldier to two Militiamen when they go out training. When the batteries go to drill and manœuvres, practically every driver is a Militiaman, and as many gunners as possible. Out of the permanent staff, half of the non-commissioned officers are Regulars, and most of the specialists have to be taken from the permanent staff on account of the extra training required. The training periods are a great deal longer than those of the Canadian artillery. The recruit gets twenty-eight days' training on enlisting. The training period in the summer is fifty-six days, and besides that for the twenty-eight days previous to training, what we call the preliminary training takes place, to which the battery commanders, all the Militia non-commissioned officers, and Militia specialists who can be obtained have to go. As far as the officers go, they are very satisfactory. The two battery commanders are here, and I do not want to make them blush, but I should be very sorry to have to pick out keener battery commanders than they are, even out of the Royal Artillery. With regard to the question of increasing the Militia, I think it would be very hard to get such good officers as we have now. It may be protested that other counties besides Lancashire can produce such officers, and in reply to that I can only say that one officer only of the brigade belongs to Lancashire. The officers come from all parts of England; they are enthusiasts in the subject; they joined this corps because they love the work, and are willing to devote the whole of the summer and a great deal of their other time to the subject of field artillery, with very excellent results. If a large increase of Militia Field Artillery is to be made, I think you cannot expect to get quite such a high standard of officer as we have in the Lancashire Field Artillery; in fact, I am sure you cannot get them. I may mention that this year at Salisbury Plain the three batteries were marked strictly in accordance with the rules governing service batteries at practice, and they qualified for the third class; while one got a first class for fire effect, and another a second class, so that with only eight weeks' training they did better than a good many service batteries training all the year round. The men are excellent, keen fellows in every sort of way. They are not local men; they are more or less casual labourers, dock labourers, and some of them seamen. It would be quite impossible to get them for

the Regular training referred to by the lecturer, as carried out by the Canadian Field Artillery at their own homes. They can only come for the annual training. As far as the non-commissioned officers are concerned, that is a difficulty which will arise if more Field Militia Artillery is formed. The Militia non-commissioned officer, however good he may be, has not the experience or the opportunities of study which a Regular non-commissioned officer can have, and I think that if batteries are to be formed entirely of Militia, without any permanent staff, the great difficulty will be with the non-commissioned officers. It will be necessary to provide special courses and special extra periods of training for Militia non-commissioned officers and specialists, if they are to be up to the standard of the Regular non-commissioned officer. With regard to that point, perhaps Colonel Drury or Colonel Hyslop will give us their opinions presently, because they are more in touch with the men than I am. I think the remark made by the Secretary of State for War, quoted by Colonel Stone in his lecture, that as regards field artillery only the very best will do, is exactly what every officer of the artillery feels; and if an increase of Militia Field Artillery is to be made, I hope it will be done only on the lines of efficiency, not to gain a certain number of batteries and brigades to put down in the Army List, but only in order to make units which can be formed into thoroughly efficient fighting units. In that way the English Militia would be what it properly ought to be, the first reserve of the Army for war. As Colonel Ivor Herbert has very ably explained to us, the Colonial Militia should be a reserve for war; but I think the English Militia ought to come first.

Lieut.-Colonel W. Campbell-Hyslop, Lancashire R.F.A. (Mil.):—First of all I desire to make my acknowledgment to Colonel Stone for having given us the information which is contained in his lecture. It is a subject in which I have no doubt many officers have taken an interest before, but personally I have been unable in any way to get the information about the military forces of Canada which he has given us to-day. I wish to deal briefly with one or two points of the lecture, on which I should like to know more, although, perhaps, Colonel Stone may not be in a position to tell us all I ask. The question that strikes one first is: On what policy has the establishment of the Canadian Army arisen? Has it been based on a general military policy, or a training policy, or a defence policy? Because, if it has been based on purely a military policy, dictated by Parliament, and carried out thoroughly by the military authorities, then Canada is indeed a happy land, and has some advantages which we have not in this country. The establishment strikes one as being rather curious, and that is really why I mentioned this subject, because when you see the proportion of training units to the establishment of the forces, it becomes a very interesting matter indeed from the point of view of training. You find, for instance, that there is one regiment of cavalry in the permanent force to sixteen regiments of Militia cavalry; two horse batteries to twenty-four batteries of field artillery; and one battalion to eighty-seven battalions of infantry. From a practical point of view that is particularly interesting, and on that ground I should be very glad if, in his reply, Colonel Stone will give us a little more information. I do not know very much about the reserve, and I did not gather quite clearly on what basis it is formed, and in what proportion it is retained. Concerning the administration, I think we would all be interested to know

if the military administration of the Canadian forces is detached from the executive, and whether there is a combatant staff, because we know from history and our own experience that, no matter what regiments we may have, without an efficient staff their services cannot be properly directed. I should, therefore, like to know whether the executive part of the staff is distinct from the administration. Is it carried out by the Militia officers, or by the Regular forces? Because I notice there are something over thirty Regular officers in Canada "attached for service," and it would be interesting to know whether they are the staff. If they are the staff, then Canada is again fortunate, because they have officers there whose sole business it is to know the forces of the country, and who probably would have that "minute local knowledge," to use Mr. Haldane's words, which is essential to their administration, a matter which perhaps is not so carefully considered in this country. Colonel Wing has given us some very interesting and full particulars about the Lancashire Field Artillery. There is just one point I would like to add, and that is the fundamental and vital difference there is between the Lancashire Field Artillery and any other Militia of which I know. Nearly all Militia have officers and non-commissioned officers of the permanent force attached to them for their instruction. As in Canada, these permanent troops and officers form schools; but there is this difference in the Lancashire Field Artillery, in that the Regular portion of the batteries are integral parts of those batteries. The Militia portion of the batteries are made and shaped and moulded by the permanent staff, who have their places in the batteries. Under such distinguished officers as Colonel Wing, and in such a splendid regiment as the Royal Field Artillery, you could not find a better school, and you need not be surprised that the best results have been obtained. In my opinion the fact that the Regular portion of the battery works side by side with the Militia portion, and is an integral part of the battery, has contributed more than any other thing to the state of efficiency to which it has been brought. It has been said that no more can be made like them, and the statement has been made that the officers are exceptional. That, in my opinion, has not been proved, because no attempt has been made to form others; and though I think we may, without affectation, congratulate them upon being efficient, yet I have still to be convinced that similar corps cannot be raised throughout the country. I would say this too: from what system can you get better or more effective results than the system of the Lancashire Field Artillery? The training unit carries on throughout the year, and corresponds to the nucleus crew of the Navy; it keeps the whole show in order. For training purposes, on one day, you increase the number automatically to three times the strength, and you move off without any fuss or worry or bother. If under such a system you can get an efficiency that is to be at all compared with the Royal Field Artillery (and Colonel Wing tells us that it is comparable), and at half the cost of the Regular units, then I think it is to be seriously considered whether it should not be encouraged; at all events, it should not be lightly thrown away. The experiment has been carried on for six years, and during that time we are told the improvement has been continuous. If so, there is yet more to be learned; so I put in a strong plea that in any conversion which may be contemplated the fact that the battery consists of both Militia and Regulars, should be regarded as one of the most important factors. There is one other lesson that I have gathered from the Lancashire Field Artillery and it is this, that if you set up a really

good soldiering job, if you appeal to the most splendid of all the faculties the average Englishman has, that is responsibility, and if you give him a thoroughly good soldiering show, with a well defined responsibility, no half-and-half sort of job, you will always get splendid results. There are scores of competent men in this country who would come to us for such a job at any time. We are, we understand, on the eve of conversion; we understand that there is to be more field artillery; and before I sit down I want to make one suggestion with regard to that. It is a suggestion with which I have heard nobody quarrel, namely, that because the Militia in recent times suffered under a great many disabilities, and perhaps lived a little in the cold (though on that point I will not dilate), would it not at the same time that it is made liable for service abroad, be a very good thing to break away from the old name, and call it, say, the Imperial Guard? Would it not, at the same time, be a perfectly possible and feasible thing to revive the old local Militia (which is on the Statute Book still), in the shape of the Volunteers, and make them the National Guard, liable to serve anywhere in Great Britain in case of war? Also make all able-bodied men liable for service in this arm in war? I have not yet found anybody who differs with that suggestion. In conclusion, I wish to make this point, that the Volunteers at the present time are very largely really the local Militia; they correspond to them closely. It is a fact that in many districts the Volunteers are competing with the Line and with the Militia for recruits. In addition to that they are paid. You will find, too, that in many cases they refused to go into camp, since 1901, unless they were paid. I think I am perfectly safe in saying that the great majority of Volunteers are paid for their services during camp. Are they, then, anything more than the local Militia? I have, in conclusion, to return my thanks to the lecturer for having brought forward the subject this afternoon.

Lieut.-Colonel R. C. DRURY, Lancashire R.F.A. (Mil.):—I would like to add a few words to my Colonel's opinion with regard to the non-commissioned officers in the Field Artillery Militia. In the past I believe we are credited with having given a more or less respectable show, and if any reduction is contemplated in the permanent staff, I hope that our present proportion of non-commissioned officers, which provides a Regular No. 1 in each section, will be maintained.

Colonel Sir CHARLES S. B. PARSONS, K.C.M.G., C.B., late R.A.:—Having recently served in Canada, I venture with your permission to make a few remarks on the lecture that Colonel Stone has given us this afternoon. Colonel Ivor Herbert referred to the advantage to be gained by a free interchange of officers, and I can only say from four years' experience in Canada, and from having continually met on duty and socially, officers of all ranks in the Canadian Militia, that I cannot conceive a more popular move with the Canadian officers than to give them every possible advantage of serving in the various parts of our Empire. At the last opportunity I had of meeting a large body of Canadian officers, two of the senior officers asked me whether it would be possible to arrange an interchange of units. One officer said to me: "Why should not a battery of artillery from Halifax or Esquimault, change places with a battery from Portsmouth or Plymouth? If such an interchange could be arranged, men would recruit more freely than they do now in the Canadian forces." I pointed out that, from my

point of view, there might be some difficulty as regards the financial question, owing to the different rates of pay. Canadians are paid at a much higher rate than our men. But, on the other hand, perhaps this difficulty is not insuperable. During the latter period of my service in Halifax and Esquimault, I was fortunate enough to witness the transfer of the Halifax Imperial forces to Canada, and for several months we had in Halifax Canadian units serving alongside Imperial units, under different rates of pay; there was no difficulty whatever. It is a question of accounting. We could pay a battery of Canadian Artillery serving at Plymouth, and send the bill to Canada. The expenses of a battery from England, serving in Canada, could be defrayed by the Colonial Government, and the amount adjusted by the War Office afterwards. With regard to the transfer of the Halifax and Esquimault fortresses, I happened to witness that, and I should like to record the keenness, energy, and zeal shown by the Canadian forces during that transfer. The officers were new to the work; they did not understand the defences of the harbours; they had not seen the big guns; they knew nothing about the search-lights or mines. With regard to the feeling of the Canadian troops, it is hardly necessary to refer to it as the Colonel has already spoken on that subject. During the four years that I served in Canada, I am perfectly certain that nothing could exceed the loyalty and patriotism of the Canadians. An instance occurs to me in support of that statement I should like to mention. When travelling in the extreme west of Canada I met some of the officers of the Western forces, and happened, in the course of conversation with two or three of the seniors, to inquire if, in the event of our wanting their assistance again, they were quite certain we should get the same number of men, the same cordial co-operation, and the same valuable assistance now, that we obtained before? and one of the officers replied: "Well, you would get more men, because there are more of us now than there were then."

Colonel F. G. Stone, in reply, said:—Colonel Ivor Herbert has very truly emphasised the national character of the Canadian Militia. We, who have served in Canada under the Dominion Government, know how very strong Colonel Herbert's efforts were to make this character an Imperial rather than a Colonial one, and I think that he himself must have been intensely gratified by the heavy crop of fruit which those exertions of his subsequently bore. I know that he worked almost single-handed in the face of great discouragement; he was practically the pioneer of the movement, and we who followed him could see his hand here, there, and everywhere, showing how the foundations of the fabric, which I have been trying to describe, were more or less laid by his unaided exertions. I entirely agree with Colonel Herbert's comments on my paper. If it is not out of order, I should like to refer to one of the statements made in my paper to which attention has been called by Colonel Herbert, namely, that as regards the infantry our Militia has nothing to gain by comparison with the Canadian Militia. That remark, as I have no doubt my audience will have realised, was intended only to apply to the system of administration and organisation. As I have said in another part of the lecture, we have much to learn of the truly national spirit which causes the Militia in Canada to enter into the home life of the people in a way which we can scarcely flatter ourselves it does in England. Colonel Wing has given us some very valuable information with regard to the Lancashire Field Artillery,

which he commands, and his remarks are all the more valuable, inasmuch as they give us what we realise to be an absolute uncoloured statement of the case. He said that the Regular officers, whom I alluded to as having started the work, have been gradually replaced by Militia officers, and he believes that nowhere could more zealous, keen, and intelligent Militia officers be found. That, I think, everybody in the Field Artillery who has at all studied this question, is perfectly cognisant of. Officers of that class, officers who have the natural instinct, as he says, for field artillery, who enter into it for the love of the thing—officers who can devote their time, their money, and their brains to making Militia Field Artillery at all on a par with Regular artillery are obviously very few. No country can produce many officers of that kind; it is not in the nature of things that any country should be able to produce such officers; there must be very few indeed. Then Colonel Wing went on to tell us that 50 per cent. of the non-commissioned officers are Regulars and belong to the permanent staff—at least, that is how I understand what he said.

Colonel WING :—What I said was, that half the non-commissioned officers are now Regular soldiers; they are on the permanent staff.

Colonel STONE:—That again represents what I think hardly any other Militia in the country, notwithstanding what Colonel Campbell-Hyslop said, could very well expect to emulate. The number of the very best must be extremely limited. The Lancashire Artillery began this movement, and they naturally secured the very best batch of officers and non-commissioned officers, who were desirous of taking up that particular line in the Militia, but it cannot be expected that there are many of those special officers or non-commissioned officers to go round. In any case, the Militia has been essentially, is essentially, and I believe in the future will be essentially a territorial force, in the sense that it will be raised from among officers and men who belong to the county or district to which the corps belong. Then I think Colonel Wing said that some of his officers came from other parts of England.

Colonel WING :—Yes, only one officer comes from Lancashire.

Colonel STONE :—I think that speaks for itself. Colonel Campbell-Hyslop said that he was unable to find any information on the subject of the Canadian Militia, and the Colonial forces in general. Three days ago I received at my office from the War Office, a book, the title of which was, I think, "Our Colonial Forces," or something to that effect. I cannot remember the exact title of the book, but many officers present have probably seen it. It contains a very full account of the various military systems obtaining in all our Colonies, and gives full and correct data, as far as I am able to judge within my own experience, of all the points which Colonel Campbell-Hyslop wished to enquire into. I do not know whether the book is on sale, but I should think it was. I do not think there is anything confidential about it.

The CHAIRMAN :—It is in the Library of this Institution.

Colonel STONE:—Colonel Campbell-Hyslop also asked on what policy the organisation of the Canadian Militia was based? I think there can be no doubt it was based absolutely on a policy of self-defence, and

that, I take it, is the policy upon which most Militias are based. Did I understand your question rightly, Colonel Hyslop?

Colonel CAMPBELL-HYSLOP:—No, not exactly. What I meant to ask was: Had there been a well defined policy as to the liability of Canada in the event of war, and, if it had been defined, had they constructed a force on that policy?

Colonel STONE:—Do you mean war between Canada and another State, or an Imperial issue?

Colonel CAMPBELL-HYSLOP:—Both would come in. What I meant was: have the establishments been the result of a well considered policy?

Colonel STONE:—The organisation of the Canadian Militia, as far as I am acquainted with it, was based solely on self-defence on the Continent of North America; it was never contemplated that it would be used for any purpose other than that. The issue which was raised at the commencement of the Boer War, with regard to sending a contingent to South Africa, shows, I think, very clearly that it never had been contemplated originally that the Canadian Militia could be called upon in any Imperial war, and that, I take it, is the constitution of the Militia, which exists in every Colony. With regard to the question of training establishments, I understood that Colonel Campbell-Hyslop's question related to the proportion between the training nucleus and the Active Militia that they have to train. In that connection Colonel Campbell-Hyslop drew attention to the great disproportion which existed between the training establishment for the cavalry and artillery as compared with the establishment for the infantry. The only explanation I can give of that is, that the training for the cavalry and artillery is of a somewhat more difficult nature than the training for the infantry, and that, I presume (though I am speaking absolutely without the book), is what caused the Canadian authorities to lay down the present establishments. They have not been departed from ever since I have known anything about Canada, and there is nothing new about them. With regard to the staff, when I was in Canada the staff was almost entirely composed of Canadian officers; I think the only Regular officers were the major-general commanding, the quartermaster-general, and, as a temporary measure only, the officer commanding the Canadian Artillery. Quite recently Canada has taken over, as the audience very well knows, the garrisoning of Halifax and Esquimault, and for that reason, and, I believe, for that reason only, is asking for additional Regular officers, as a temporary measure, but with no idea that they shall form a permanent part of the Canadian Militia. Then Colonel Campbell-Hyslop argued that the Lancashire Field Artillery is really only a sample of what could be done, more or less, throughout the country if we set to work at it in the right spirit. I quite agree with him, that if you give everybody a good show to run, give them responsibility, and make the show worth running, you will encourage a feeling of enthusiasm on the subject, which will produce the very best results; but I must still fall back upon what I said when I agreed with Colonel Wing, that I am very doubtful, in fact, I am more than doubtful, whether anything like the necessary number of officers, non-commissioned officers, and men could be found in the country to devote their time, their energies, and their money to the formation of a territorial field artillery on the lines of the

Lancashire Field Artillery. I think Colonel Drury's plea for a Regular No. 1 in each sub-section is rather *à propos* to my remarks.

Colonel DRURY :—What I said was, that we should have one Regular No. 1, and one Militia No. 1 in each section; I was speaking of the 50 per cent. as far as the No. 1's are concerned.

Colonel STONE :—Yes, the point being that you did not think that even the Lancashire Militia would stand absolutely alone and be efficient without them.

Colonel DRURY :—Of course, the difficulty connected with non-commissioned officers in the Militia is well known to every one who has served in the Militia, particularly the difficulty of discipline; and, of course, in field artillery those difficulties are magnified tremendously.

Colonel STONE :—I quite appreciate that the non-commissioned officer difficulty is the greatest of all. A Militia non-commissioned officer can never exercise the same authority as a Regular non-commissioned officer, because if he used it he would be liable to retaliation when the training was over. Sir Charles Parson's remarks are really not comments upon my lecture, but a very valuable accession to it; they therefore call for no further remarks from me.

The CHAIRMAN (Major-General Sir G. H. Marshall, K.C.B.):—I feel that I must apologise to you for being in the Chair, because on these occasions I think the chairman ought to know something about the subject. I do not know anything about Canada, nor about the Militia, and I am here simply because the Secretary could not get anybody else to occupy the position. We tried very hard to induce Lord Strathcona to come, but I am sorry to say he was unable to do so, and at last the Secretary came to me as a stop gap. But although I have never been to Canada, nor served in the Militia, I can speak on the subject from a general point of view, and should like to make a few remarks. Unfortunately the whole discussion seems to have narrowed itself down to a comparison between the Canadian Field Artillery Militia and the Lancashire Field Artillery Militia. We are all agreed, apparently, that the Canadian system is exceedingly good, and gives efficient results. We are also, I am sure, all agreed (and Colonel Wing, in whom we have great confidence, has explained the position to us very fully) that the Lancashire Field Artillery have done excellently well, and are worthy of every sort of praise, especially in regard to the officers. But I think we must not be too squeamish about personal matters. Luckily, we have had Colonel Wing here, and he has so spoken of his officers that no reflection could be cast on any of them. But I think we have to bear in mind that the experiment with the Lancashire Field Artillery has been a small one, and I do not believe in small experiments proving anything in a large way; because, after all, the logical result of that would be that we should say a body of men raised like the Lancashire Field Artillery is almost, in Colonel Wing's view, better than the Regulars, and why, therefore, have any Regulars at all? Why not abolish the Regulars and have nothing but Militia Field Artillery? I think that is a very dangerous course for soldiers to take. I think we should only raise such a question when the experiment has been proved on a large scale, because if we do otherwise here, politicians are very apt to take

what we say seriously, and they would be justified in saying: "Let us have nothing but Militia Field Artillery." That is a danger we have to keep in view. I am speaking now rather as an expert in the matter of training, because I have had a great deal to do with that question during my service. I have done a great deal of training with Regular Field Artillery, both in manœuvres and in practice camps; in fact, I have been at it the whole of my life, and I do not think we get too much training in the Regulars. I do not see how we are going to have a Militia Field Artillery able to go into action and to fight Regulars unless they are as good. I quite admit that the Lancashire Field Artillery is good, but I submit that that is not the question. The question is, whether we could do the same with the Militia all through the country. I would also like to point out that the Canadian Field Artillery is not at all likely to ever come into contact with large forces of Regular artillery, and that is a point which has to be borne in mind. To go more into details, there is one matter that impressed itself upon me very much indeed, namely, the extreme difficulty there will be of getting efficient commanders of batteries. In my opinion the introduction of the quick-firing gun will necessitate that the commanders of batteries of quick-firers shall be men of the highest capacity and training, men who have been trained all their lives to it; and I do not see how we are to get those sort of men throughout the service unless we have them training from the very commencement. I am sure you will now allow me to thank Colonel Stone on your behalf for coming here, and giving us such an interesting lecture, and, at the same time, I sincerely trust we have all benefited by the discussion which has taken place.

THE RECONSTITUTION OF OUR INDIAN ARMY: ITS COMPOSITION IN THE PAST AND IN THE PRESENT.

By Lieut.-General F. H. TYRRELL (Late Indian Army).

Continued from February JOURNAL, p. 205, and concluded.

In 1796 the three Presidency Armies were re-organised, the infantry battalions being formed into regiments of two battalions; this organisation lasted until 1826, when the battalions were again separated into single battalion regiments. This arrangement, undesirable from the aspect of military efficiency and economy, was adopted partly to harmonise the organisation of the Company's forces with that of the King's Army, in which all the regiments of Foot had been reduced to single battalions in the great reductions, following on the Peace of 1815; and partly to accelerate the promotions of the British officers of the Army, which, in time of peace, was very slow in a purely seniority service, when there was no age limit or system of compulsory retirement to regulate it. The doubling of the number of regiments at once doubled the number of regimental colonelcies, which were the chief prizes of the Company's military service; and the rate of promotion was apt to be quicker in single than in double battalion regiments. As all the officers of the East India Company's service were nominees of the Directors, and, in many instances, their relatives and friends, their interests were always carefully considered by the Court in Leadenhall Street; and it was probably, chiefly owing to this fact, that the honourable Company's military establishments never underwent reduction, even when they were manifestly in excess of the requirements of the situation. At the outbreak of the Sepoy Mutiny, in 1857, though the shadow of the Russian advance had not yet fallen on our north-western frontier, the strength of the Indian native Army was double what it is to-day. The Bengal Army consisted of 10 regiments of light cavalry, 4 troops of horse artillery, 8 field batteries, and 11 companies of garrison artillery, 12 companies of sappers, and 74 battalions of infantry; all Regular troops; in addition there were 17 regiments of Irregular cavalry, and 24 battalions of Irregular infantry.

The Madras native Army comprised 8 regiments of light cavalry, 2 troops of horse, 3 batteries of field, and 4 companies of garrison artillery, 9 companies of sappers, and 52 battalions of infantry; while the Bombay Army mustered 3 regiments of native light cavalry, 4 field batteries, and 8 garrison companies of artillery, 5 companies of sappers, and 29 battalions of Regular infantry, besides 9 Irregular regiments of horse, and 10 Irregular battalions of foot. Outside of these three Presidency Armies were a dozen independent military formations, such as the Punjab Irregular Frontier Force, the Hydera-

bad Contingent, the Gwalior Contingent, and other similar contingents maintained by Native States, and officered and trained by British officers; the Mysore State troops, the Nayar Brigade in Travancore, and other similar bodies. The whole aggregate strength of the native Armies in India amounted to more than 300,000 sabres and bayonets, with 240 guns; and one half of this total was furnished by the Bengal Army, and the contingents affiliated to it, and immediately under the orders of the supreme Government.

The Armies of Madras and Bombay were immediately under the orders of the governors and councils of those Presidencies, and had their own commanders-in-chief and general staffs, their own Army departments, arsenals, and factories. Though the commander-in-chief of the Bengal Army was also commander-in-chief in India, his authority over the two minor Presidency Armies was purely titular, and he could not interfere in any way with the details of their administration.

When the troops of the different Armies met, and served together in the field, they met rather as the Armies of Allied Powers than as the forces of the same Government. Their dress and equipment, transport and camp equipage, were different in many respects. Their regulations and standing orders were peculiar to each Army; even the rate of allowances varied. The company command or contingent allowance was fifty rupees per mensem in the Bengal Army; in the Madras Army it was only thirty rupees. A Bengal corporal's guard had four privates; a Madras or Bombay corporal's guard had only three. There was great emulation, not to say jealousy, between the British officers of the three Armies; between the native soldiers there was actual enmity. The high-caste Bengal sepoy despised the low-caste Madrasi, who repaid his contempt with hatred. The Bengal Army being under the immediate eye of the supreme Government, was always suspected and accused by its rivals of obtaining more than its fair share of patronage and encouragement.

By the year 1820 the British Government had become firmly established as the Paramount Power in Hindustan, and the long series of internecine wars that had devastated India for a whole century came to an abrupt close. The Pax Britannica reigned from Simla to Cape Comorin, and the natives of India were debarred from the use and exercise of arms which had hitherto been necessary and habitual to them. The native troops were no longer inured to war, and only portions of the Army were occasionally called upon to cross the sea to combat contemptible enemies, such as the Burmese and Chinese. Under such circumstances the old Coast or Madras Army soon deteriorated as a fighting force. The natives of southern India, from whom it was recruited, were, from climatic conditions, inferior in courage and physique to those of northern India; and such soldierly qualities as they had acquired in war were dissipated in a long peace. The best of them ceased to seek a career which no longer promised honour and profit, and betook themselves to avocations in civil life, where ambition and energy might secure higher rewards. The system under which the families of the soldiers lived with them in their quarters, also militated against efficiency. The abuses of it were not checked in time, and the sepoy was expected to provide for and shelter not only his wife and children, but also his sisters, his cousins, and his aunts. The host of followers became a parasitical growth, which sucked the life-blood of the Army, and no attempt

was made by the authorities to maintain or restore efficiency. In order to avoid swelling the outlay on pensions, native officers and men were allowed to serve on long after they had ceased to be fit to perform even the ordinary garrison duties. Men who had carried muskets in the great Mahratta War, were still serving as native officers on the active list at the outbreak of the Mutiny, forty years afterwards.

The senior English officers were, as a rule, too old for the duties they had to perform. Among the regimental commanders there were men absolutely decrepit. Each Regular regiment had a full complement of British officers; at the time of the Mutiny the establishment of a native battalion was a lieut.-colonel, a major, 7 captains, 11 lieutenants, and 5 ensigns. But in time of peace, from one-half to three-fourths of these were employed extra-regimentally with Irregular corps, on staff appointments, and in Army Departments, or in civil or diplomatic posts. Whenever an official was required to fill a new or a vacant post, he was taken from among the British officers of the native Army, for there was no one else available. The Public Works Department, the Revenue Survey, the Police, and a host of other employments were thus held by military officers. If a regiment was ordered on service, all its officers had to rejoin it, and this arrangement, for obvious reasons, did not always work well. But the chief blot on the system was, that as soon as one of these absentees was promoted by seniority to the rank of lieut.-colonel, he had the right to throw up his paymastership, or his commissaryship, or his commissionership, and to claim command of a regiment. Thus Sir Charles Napier, when he took command of the Bengal Army, found regiments commanded by men who had forgotten the rudiments of drill, and who were unable to manœuvre their commands on parade. For the Bengal native Army deteriorated more rapidly and completely than the Madras did. Both in the Madras and in the Bombay Armies discipline was always maintained; but in the Bengal Army it was relaxed to a dangerous extent. It seems to have been argued that the Hindustani sepoy was such an exemplary soldier, so well behaved in camp and quarters—as he certainly was—that there was no use in fettering him with unnecessary restraints, and he was allowed so much discretion that he at last considered himself to be master of the situation, and imagined that he was capable and qualified to take the reins into his own hands. Caste prejudices were admitted as a plea to excuse the sepoy from any disagreeable duty. He was allowed to take off his accoutrements and uniform when on guard duty; the punishment of flogging was abolished for him while it was retained for the British soldier, and for the sepoys in the Madras and Bombay Armies. In short, a good soldier was thoroughly spoiled by over-indulgence and relaxation of discipline. It is difficult to say when this deterioration of the Bengal Army set in; some have considered it to be synchronous with the removal of the Army Headquarters to Simla, a move which threw the staff out of touch with the Army, which was thenceforward governed with ignorance of its real needs and conditions. The administration was too much centralised; adherence to rules and regulations was held to override the exercise of judgment and common-sense; and, in short, all the vices inherent in the system of a standing Army in peace time were allowed to develop to an inordinate extent. Commanding officers were deprived of all authority and initiative, and sepoys were allowed

to send petitions and complaints against their officers direct to Army Headquarters! The Mutiny was, in fact, caused by maladministration pure and simple; and it is a noteworthy fact that this maladministration occurred under the eyes of the Government of India, and in the Army, which was most immediately under its control. Routine and red-tape were also rife in the Army systems of the minor Presidencies; but in them an efficient standard of discipline had always been strictly maintained.

As early as 1850 Sir Charles Napier had warned the Government of the dangerous state of the Bengal native Army, but his warning was unheeded, as were the ominous rumblings that preceded the imminent storm; the incident of the distribution of the chupatties, attacks upon officers, incendiary fires; no precautions were taken. It is noteworthy that the plots of the sepoys were hatched under the noses of their British officers, who remained in total ignorance of the feelings and intentions of their men, and who trusted to their fidelity up to the very moment when they fell victims to their murderous fury. But the Madras and Bombay native troops, aggregating one-half of the total number of our Indian native soldiery, remained loyal, felt no sympathy with the mutineers, and were quite ready and willing to act against them. After the steed had been stolen, it was, of course, decided to carefully lock the stable door for the future; and the following precautions were adopted to guard against the recurrence of a general mutiny. It was resolved that the proportion of European to native troops in India should be always maintained at 1 to 2 (before the Mutiny it had been as 1 to 6):—

That no natives should be trained as gunners or employed in the artillery service;

That the native troops should be armed with an inferior weapon to that used by the British troops;

That the units of the native Army should be kept at the minimum strength compatible with efficiency (an establishment of a native battalion was fixed at 700 of all ranks);

And that the three separate Presidency Armies should be retained distinct from one another.

Of these five precautionary measures adopted, while the sense of the peril to our Empire was still fresh in men's minds, the last three have been entirely abandoned, and there seems to be some danger of even the first sharing their fate. The third and fourth militated against military efficiency, and were abandoned in its interest; the fifth and last was inconvenient from a military point of view; but it is possible that we may yet pay dearly for its abandonment.

The old Bengal Native Army was entirely dissolved in the cataclysm of the Mutiny. Of its Regular troops there survived only eleven battalions, most of which happened to have been stationed at the time of the outbreak in Burmah or China, where they had no chance of joining in the revolt of their comrades. Eight regiments of Irregular cavalry, and four battalions of Irregular infantry had remained loyal. Some dozen regiments of horse, and thirty battalions of foot had been raised during the progress of the Mutiny, to help in quelling it; most of these were raised in the Punjab from the Sikhs and Mussulmans of that province, others from the Jats, and from low-caste Hindustanis, as the Agra Levy, the Alighor Levy, etc.; all were now incorporated and re-numbered in a new Bengal

Army, mustering nineteen regiments of cavalry, a brigade of sappers, and forty-five battalions of infantry. The corps improvised during the Mutiny had been hastily provided with any British officers who happened to be available, averaging six or seven for each corps, who formed the regimental staff, while the troops and companies were commanded by native officers; and this hastily improvised organisation was adopted permanently on the re-organisation of the Army. It was also extended to the Madras and Bombay Armies, where it worked badly, as it was unsuited to the codes of regulations and standing orders in force in those Armies; but in the new Bengal Army, all rules and regulations had been swept away by the torrent of the Mutiny, and the discovery of the rottenness of the old system made men rush to the opposite extreme. The commandants were absolute and supreme in the regiments, and enlisted, promoted, and discharged men at their pleasure. And this system was popular with the Pathans and Sikhs, who had a great aversion to the "Kaida" (regulation), to which the Madras and Bombay sepoys of Regular regiments had grown accustomed.

But the regiments of the new Bengal Army were not mixed regiments. Some of them consisted entirely of men of one class, like Cureton's Multani cavalry, raised from among the Mussulmans of the Multan District, which became the 15th Bengal Cavalry. Others were class-company regiments, for the enmity between the different creeds and castes in the Punjab was so great that it was found advisable to keep the Sikh and the Mussulman apart in different companies, just as in the old Swiss regiments *à l'étranger*, in Europe the Protestants and the Catholics were kept in separate companies. All the Punjabi regiments, which formed the bulk of the new Bengal Army, were recruited on this class-company system.

In course of time a movement towards the unification of the system of Army administration in India took place, and the Army Headquarters at Simla began to interfere in the management of the two minor Presidency Armies, and in the regulation of their conditions of service, the Departmental and Auxiliary services of the three Armies were, by degrees, amalgamated, and finally the whole military organisation was re-cast, the whole of the Army in India being organised in four Army corps, each commanded by a lieut.-general, under the commander-in-chief in India, who was relieved from the immediate command of any body of troops.

The Bengal Army was divided to make two Army corps: the Punjab and Bengal or Northern and Eastern Commands; while the existing Bombay and Madras Armies furnished the Western and Southern corps. The Punjabi regiments of the new Bengal Army naturally were allotted to the Punjab command, while the Hindustani regiments garrisoned the Central and North-eastern provinces; and the Indian native Army still remained fairly representative of the whole of our Indian Empire, from the Pathans in the north, to the Tamils of the south, Mussulmans and Mahrattas, Sikhs, and Dogras, Jats and Rajputs, besides Afghans and Gurkhas from beyond our borders. The four Army corps were recruited from the territorial areas which they occupied. True, there were some provinces which furnished no quota of recruits to our colours. No Bengali enlisted in the Bengal Army. Some races, who ought to make good soldiers, the Nairs and Mapilas of Malabar, and the Coorgs, turned their backs on our military service from a dislike to quitting their homes, or a

distaste for the restraints of discipline. But our policy has latterly been to abridge instead of to extend our recruiting area, to almost confine it to one out of our twenty or more provinces in India. A process has been going on steadily for the past quarter of a century, by which the Indian native Army is being converted into a Punjab native Army; the Punjab Army Corps, like Aaron's rod, has swallowed up all its fellows. It may prove interesting and instructive to briefly examine the causes and consequences of this radical change in the composition of our Indian Army.

The Punjabi, whether Pathan, Punjabi Mussulman, Sikh, or Dogra, is the best soldier that we can find in our Indian Empire. He is not superior to the Gurkha, but most of the Gurkhas in our services are not our own subjects, but foreign mercenaries from Nepaul. The Punjabi is as superior to the Hindustani as the German is to the Spaniard or Italian, and as superior to the Madrasi as the Russian or Prussian is to the Neapolitan or the Greek. The Afghan or Pathan is a born soldier; perhaps the best in all Asia, and if properly led he need fear no foe that Europe could bring against him. On the only occasions on which Afghans and Turks met in battle on the western borders of Persia, and under the banners of Nádir Sháh, the former were victorious. The Afghans were long the masters of India. Under the Mogul Empire they filled in Hindustan the *rôle* of the Swiss in Europe, in the seventeenth and eighteenth centuries. Many of them were employed by the Viceroys of the Deccan under the name of "Rohillas" as well as Arab mercenaries, and the Mussulmans of Hyderabad say that the Arab will only fight well behind a breastwork, but the Rohilla will fight in the "Karak Maidán" (open field). The Pathan, however, has not the character for unswerving fidelity which the Swiss mercenary earned in Europe: he has an evil reputation for treachery; but this was often due to his resentment of the bad faith and duplicity of the Princes who employed him.

The Sikh is in no way inferior to the Pathan, except, perhaps, in mountain warfare, for he is a dweller in the plains. His history and environment have developed his race from a religious sect into a militant nation in the space of two centuries. The Mussulman of the Punjab is little inferior to him in strength of body and military spirit, and the low-caste inhabitant of the Punjab, the Mazhabi Sikh (*i.e.*, Sikh by religion (Mazhab) and not by race) fills the ranks of our pioneer regiments.

The commanders and officers of our Indian Army very naturally desire to have its ranks filled with the best material procurable. A Pathan or a Sikh soldier costs no more than a Konkani or a Madrasi. Nay, owing to the practice of the families of the Madras sepoys accompanying the regiment on the move, the cost of the latter was often greater. Gradually, therefore, the native troops of inferior quality have been weeded out, and their places filled by men recruited in the Punjab. In 1882 some half-dozen Hindustani corps of the Bengal Army, which had been raised during the Mutiny, were disbanded on a general reduction of the Army; and not very long afterwards their places were filled by newly raised regiments of Sikhs, Dogras, and other Punjabis. And shortly afterwards, the same transformation was wrought to a greater extent in the Madras Army, the fighting efficiency of which had materially deteriorated through the rust of a fifty years' peace, and the stagnation of promotion and general discouragement consequent on sweeping reductions. At the

outbreak of the Mutiny of the Bengal Army, in 1857, the Madras Army mustered fifty-two single-battalion regiments of infantry, each of 10 companies of 70 privates each, 700 privates in the battalion. In view of the possible employment of these loyal troops against the Bengal mutineers, all the Madras regiments were ordered to recruit up to a strength of 1,000 privates, and some extra or provisional battalions were raised; altogether, 17,000 recruits were raised in the Presidency in a few months, and the supply of eligible recruits available being exhausted, many men of an inferior stamp were enlisted, *faute de mieux*; but after the suppression of the Mutiny, retrenchment and reduction were the order of the day; and it having been decided to fix the strength of all native infantry battalions at 600 privates, the Madras regiments were reduced from 10 companies and 1,000 privates to 8 companies with 600 privates. Consequently, 400 privates had to be mustered out or pensioned off in each battalion, and many good old soldiers were thus got rid of, while the inferior men latterly enlisted remained; and the reduction of the number of companies from 10 to 8 made some native officers and non-commissioned officers, supernumerary, and checked a rate of promotion which was already too slow. But worse was yet to come. The financial state of India, after the Mutiny, made reduction of expenditure imperative; the south of India was loyal and tranquil, and required no such large force for its garrison, and the Madras Presidency had no foreign frontiers to be guarded. It was, therefore, natural that its Army should be selected for reduction, and within a few years four regiments of cavalry and twelve of infantry were disbanded, the British officers, native officers, and non-commissioned officers being distributed among the remaining regiments. This caused a complete stagnation of promotion. Three lieut.-colonels and brevet-colonels were sometimes to be found in one regiment, and the evils of advanced age in the native officers and non-commissioned ranks became greatly aggravated. In 1882 one more regiment of cavalry, and eight more regiments of infantry were disbanded with the same disastrous effects. These reductions had an injurious influence on recruiting, for the Indian sepoy enlists for long service with pension and regards the Army as a career for life; and it was natural that these men would not enlist with the prospect of being turned adrift before they had qualified by length of service for pension. The dearth of recruits was made an excuse for disbanding more Madras sepoys, and replacing them by Punjabis; but if the former had been accorded the same treatment as the latter, recruits would have been forthcoming in plenty. The method now adopted was to muster out all the Madrasis in a regiment, pensioning all who had served for pension and discharging the rest with gratuities, or transferring them to the remaining Madras regiments, thus further blocking the promotion in the native ranks. The ranks were then filled by recruits enlisted in the Punjab, and to officer them Havildars from all the Punjab regiments were drafted into the re-constituted regiment as Jemadars, while Jemadars were similarly promoted to be Subadars. Thus each conversion, while it caused a block of promotion in the few remaining Madras regiments, caused a flow of promotion through all the Punjabi regiments. This "conversion" of Madrasi into Punjabi regiments has now been going on for the past twenty years, and will probably go on for some years more, as there are still three squadrons and eleven battalions of Madras troops remaining to be converted. The object of these con-

versions is to secure for the Indian Army the best available material as *chair á canon*; it also has the subsidiary effect of keeping our Punjabi officers and soldiers in good humour by artificially accelerating the flow of promotion. But this process must come to an end when all the non-Punjabi regiments have been converted, and what, then, will be the effect of its cessation?

Simultaneously with the conversion of the native Indian Army into a Punjabi Army, the old tradition of mixing the different races and creeds in the ranks has been abandoned, and the class-company system has been substituted for it in all the corps of the old Madras and Bombay Armies. The reason for this step does not appear on the surface. The mixed regiment system had lasted for a century in the Madras and Bombay Armies, and had never broken down; in the old Bengal Army it had been early abandoned, and the regiments of that Army had become almost class regiments, recruited exclusively from Mussulmans, and from the class called Poorbeah (Eastern men) by the Punjabis, Pardesis (up-country men), by the Bengalis, or Pandies, after Mungul Pandy, who fired the first musket aimed at a British officer in the Mutiny. Thus, as far as our experience goes, the class system has once failed, while the mixed system has not failed yet; but our Indian military authorities prefer the class system on grounds of military efficiency, and have lately re-cast many class-company regiments into class regiments, and mixed regiments into class-company regiments. The expediency of this change, time, as Mr. Gleig observed, and time only, can determine.

Finally, the old distinction between the three separate Armies, and the four Army corps, has been swept away, and their differences merged in one homogeneous Indian Army. And, indeed, when the bulk of all three Armies is composed of Punjabis, and recruited from the single province of the Punjab, there was no object gained by the retention of the old classification. The very names of Bengal, Madras, and Bombay have been expunged from the Army List, and only the word Punjabi greets the eye on every page. The three surviving Madras light cavalry regiments are entitled light cavalry without any qualifying local appellation, and the eleven remaining battalions of Madras infantry are described as "Carnatic" infantry regiments. But in obliterating the traditions of the past there lurks the danger that we may fail to profit by its experience.

Out of the thirty-eight regiments of cavalry of the Indian Army, twelve are entirely, and twenty-two partially, recruited from the Punjab. Including the cavalry of the Corps of Guides, out of one hundred and fifty squadrons, ninety are composed of men from the Punjab.

The ten batteries of mountain artillery are mostly filled with Punjabis, and of the brigades of sappers, the 1st (*Ci-devant* Bengal), and the 3rd (*Ci-devant* Bombay) have a large proportion of Sikhs and other Punjabis in their ranks. Of the hundred and forty battalions of infantry in the Indian Army (including twenty battalions of Gurkha Rifles), fifty are recruited entirely in the Punjab and in the N.W. Frontier Province, which, till recently, formed a part of it, and twenty more are partially recruited from it. Many of the regiments of the old Bombay Army (now the Western Command) have two companies of Punjabis, while others have six Punjabi companies out of eight in the battalion. Thus, half of our native Army is recruited from a single province, besides which the

Punjab furnishes police for our colonies in China and East Africa, and gunners for the garrison batteries maintained in Singapore and the Mauritius. It is already alleged that the recruiting resources of the Punjab are over-strained, and that the latest raised battalions show a falling off in physique. No doubt the same influences are at work in the Punjab as in the rest of India; the Pax Britannica, the advance in material prosperity, the increased demand for labour of all kinds, tend to restrict and diminish the supply of recruits, as has already happened in Western and Southern India.

The Indian Army was never in a higher state of efficiency than it is at present. In the general state of unpreparedness for war that exists throughout our Empire, it is a tangible and valuable military asset, upon which, in the case of a European war, we should draw largely. In 1878 Lord Beaconsfield brought a division of Indian troops to Malta and Cyprus, and Russia drew back before his menace.

The French used their native Algerian troops against the Germans in 1870, and they behaved as well as any Europeans. And in the face of the continual decay of the political and social systems of the Turkish Empire and the Persian Monarchy, which may at any time precipitate a crisis in near Eastern affairs, our Indian Army will prove invaluable to us.

But there is a political as well as a military side to all questions relating to the Indian Army. There is always the latent danger existing in all mercenary Armies, of a difference of opinion arising between the Army and its employers. The existence of three separate and rival native Armies in India was an insurance against that danger; but it has been swept away. The Indian Government has put all its eggs into one basket. It is believed that the number of different creeds and races in our Army is sufficient to make combination for a common object impossible; but the greatest difference is between Mussulman and Hindu, and we find Mussulmans and Hindus uniting against us in the Mutiny of the old Bengal Army. However, the segregation of Mussulmans and Hindus in class regiments is a barrier to their combination, while under the old mixed system their differences were obliterated in a common comradeship. But if segregation is still a guarantee of security, how much greater would be that security were our military forces in India segregated in three separate and distinct Armies, as in the time of the East India Company?

Everyone acquainted with the natives of India must have observed their tendency to form social or political associations, founded on community of employment, a tendency fostered, perhaps, by the caste system of Hinduism. The association of men of different races in creeds in a common service soon rubs off the corners of their divergences and welds them into a united corporation. And this was seen in the old Presidency Armies, where the sepoys formed a community in themselves, having little sympathy or intercourse with the civilian population. The Mussulman sepoy of a Madras infantry regiment had more in common with his Tamil and Telinga comrades in arms than he had with his co-religionists among the civil population. As all our Indian native troops are now collected into one Army, the separation of the classes which composes it, and their segregation in separate regiments, seems to be politic and necessary. But as our civil policy is slowly but surely sowing the seeds of an Indian nationality, so our military policy may possibly succeed in uniting all

the various types of creed and race in our native Army in one common brotherhood of arms.

The chief danger to the efficiency of our Indian Army lies in the tendency to centralise authority, to substitute rules and regulations for personal influence, to make routine and precedent the essentials instead of the incidents of military administration.

The evil system, which made the Mutiny possible, now that the lessons of the Mutiny have been forgotten, is being re-established in the Indian Army. The commandants of regiments have already been deprived of the extended powers which they exercised after the Mutiny, and their proper functions are usurped by general and staff officers. The craze for regularity and uniformity may again, as it did formerly, impair the martial spirit of our native soldiery; the excess of "*Kaida*" tends to keep the best men out of our service. This is especially the case with our cavalry regiments, in which we run the danger of imitating the Russians, who have with great pains converted their Cossacks, who were originally most excellent Irregular cavalry, into a bad imitation of Regular cavalry. A short time ago a plea was actually put forward for the conversion of our native cavalry regiments from Silahdárs into "Bárgirs" (Regulars), on the plea that the present system rendered them too independent. Many of the features of the original Silahdár system have been regularised out of existence, and the efficiency of our Indian cavalry has not been improved thereby; its conversion into Regular cavalry would result in its total ruin. Every now and again an energetic commander-in-chief checks the creeping tide of routine and red-tape regulations, which threatens to paralyse the energies of the Army; but the evil seems inherent in our military system in time of peace.

A defective system of education for our staff officers is perhaps at the root of the evil.

Another danger to the future of our Indian Army lies in the ignorance of the British Government and the British officers of the real feelings, and opinions of the native soldiery, which is as great to-day as it was before the Mutiny. To the scrutiny of his European superior, the Asiatic opposes an impenetrable reserve, bred of an instinct begotten by centuries of submission to oppression, aided by suspicion of the motives of aliens, whose methods and springs of action are wholly incomprehensible to him. He affects to fall in with their ideas, while secretly cherishing his own totally opposite ideals; he pretends to follow their reasoning, while at heart he is utterly unconvinced by it. If his opinion on any subject is required by his European superior, he will give the answer which he thinks his superior wishes him to give; if he does not know what opinion his superior wishes him to give, he will beat about the bush until he finds out, and will answer accordingly. When the dress adopted in the new Bengal Army was introduced into the Madras Army, in 1882, the native officers and sepoys all declared that they preferred the new dress to the old, because they knew that their chiefs wished to introduce it; but they really preferred their old dress of tunic and trousers to the new blouse and knickerbockers. Both were equally foreign to them, but they preferred being dressed like British soldiers to being dressed like Pathans. Besides, it was a change, and all change, even if it be beneficial, is repugnant to the oriental mind. However, they dutifully echoed the chorus of their British officers in praise of the new dress; but it was observed that when the native

officers got their photographs taken, they had themselves photographed in the old dress—a pretty plain indication of their real sentiments.

Similarly the late changes in the numerical titles and designations of regiments were not agreeable to the men of the regiments affected. The constant changes in matters of detail, which are part and parcel of our system of Army administration, are secretly resented by the sepoy, not because they are needless and futile, as they too often are, but because they are new.

The British officers of the Indian Army are younger, more active, and better educated than they were in the time of the East India Company; but the relations between them and their native soldiers have not improved. There was a closer intimacy and sympathy formerly than there is now. The change is chiefly due to changed conditions; the Englishman no longer looks on India as his home; he has frequent occasions to re-visit Europe, instead of the one furlough during his whole service which the Company's officer could claim; his object is to leave India as often, and sometimes to quit it for good, as soon as possible; and, naturally, he feels less interest in the country and its people. Besides, under the new system his regiment is no longer the home to which he remains attached throughout his service; he does not even get his promotion in it, and is always liable to be transferred to another corps. He no longer belongs to the regiment in the sense that the native soldier belongs to it; and this weakens the bond of union between them. Moreover, the young officer receives his training in a British regiment, a school in which he, too, often learns to dislike and despise all natives. Moreover, to know men intimately, and understand them well, a good knowledge of their language is essential; and this is not possessed by many British officers of native regiments. Generally speaking they are less of linguists than their predecessors, who were not obliged to pass any examination in the black classics; the substitution of a compulsory for an optional test had the effect of lowering the standard all round, and there are few men to be found nowadays who could rival the old interpreters in the extent and fluency of their Hindustani vocabulary. The British officer at the present day has not the same power, nor the same influence, that the Irregular cavalry officers of the Company's Army had over their regiments; the tendency of our administration recently has been to reduce the authority and so to impair the influence of the regimental officers, a policy which was one of the most direct causes of the great Mutiny. The loyalty of Asiatics is always loyalty to the person of the ruler, and not to any impersonal system of Government, least of all to a system of Government which their limitations prevent them from comprehending. The personality of their Emperor is too foreign and too remote to inspire in them the feeling of personal loyalty; but that sentiment can be inspired in them by the officers who are the representatives, and by the colours which are the symbol of his august authority.

THE BATTLE OFF TSU-SHIMA.

IN MEMORY OF "THE SUVÓROFF."

A PERPETUAL TRIBUTE TO FALLEN HEROES.

Translated from the Russian of Commander Vladimir Semenoff, Imperial Russian Navy,

[With the Author's permission],

By Lieut.-Colonel W. E. GOWAN, Retired List, Indian Army.

Continued from February JOURNAL, p. 220.

II.

Up to this time fortune had evidently been favourable to us, for we had not yet been discovered. Throughout the vessels of the Squadron all wireless messages had been stopped, in order that we might the more carefully intercept those of the Japanese. And in doing this our telegraphists used every endeavour to ascertain the direction whence such messages were being sent. During the night of the 13th (25th) May, or rather during the preceding day, a conversation had begun between two stations, or, to speak more correctly, the information intercepted came from a station that was the nearest to, and in front of, us. These messages, which were evidently in answer to others coming from a station further away and more to our left, were not in cypher. Notwithstanding that our telegraphists were unaccustomed to a strange alphabet, and that in our copy of the same letters were missing; still, we could make out of the messages whole words, and even phrases. For instance: "Last night . . . nothing . . . eleven lights, but in confusion . . . a bright light . . . the same star." And so on.

Probably this was a message from the strong coast station, on the Goto group of islands,[1] communicating to some more distant station what had been seen in the Straits.

Towards evening we heard conversations going on between other stations. The same night we intercepted seven of such messages. These were in cypher, but from their brevity, and also from the uniformity with which they both began and ceased within definite periods, it might, with great confidence, be said that they were not despatches, but reciprocal calls of men on the look out. It was evident, however, from all of these, whatever their nature might have been, that we had not yet been discovered.

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[1] Off the west coast of Kiu-Siu, between 30° 30′ and 33° 20′ North Latitude.—W.E.G.

At sunset it was our practice to close in, as much as possible, the vessels of the Squadron. And in expectation of torpedo attacks, half of the officers and sailors were told off for duty near the guns. The rest lay down, completely equipped, close to their appointed places ready to jump up at the first sound of alarm. Night fell upon a murky atmosphere. The fog appeared to be getting thicker, for through it only a few stars were visible, and these but dimly. Over the shaded decks reigned an oppressive stillness, occasionally interrupted by the heavy breathing of some sleeper, or by the tread of an officer as he passed along, or by the subdued voice of someone giving an order. At the guns could be seen the literally benumbed and motionless figures of the crews. Those on the look-out keenly tried to penetrate the gloom, and attentively listened lest perchance, as there glided and glistened the dark silhouette of a torpedo-boat, alarm should have been given to our unseen enemy by the sound of the working of her engines, or by the noise caused by the escape of steam.

Cautiously advancing, so as not to disturb those who were asleep, I passed over the bridges and down to the lower-deck, and thence descended to the engine-room. Here for a moment I was completely dazzled by the brightness of the light that illumined every part. Here there reigned life and motion. Men were loudly stamping their feet as they ran along the platforms or passed up and down the ladders. Electric bells were sounding, calls were shouted, and orders were being given at the highest pitch of voices. But, on looking more attentively, even here I noticed the same sense of tension, the same concentration of purpose and the same peculiar sort of suppressed excitement that reigned on the upper deck. Indeed, it all at once occurred to me that everything—the tall but slightly stooping figure of the Admiral, as he stood at the end of the bridge, the wrinkled face of the steersman, as he bent over the compass, and the gun crews standing frigidly at their posts, and these rushing and loudly shouting men, these gigantic pistons, somewhat dully glistening as they moved in and out of their steel cylinders, to the accompaniment of the mighty pulsations of the steam therein—was but a part of one and the same scene.

An old nautical legend about a ship's spirit suddenly flashed across my mind. It is about the spirit, which lives in every rivet, which holds securely every bolt, every screw, and which, in fatal moments, authoritatively takes possession of the entire vessel and its crew, and changes into one undivided supernatural being both the men and the objects around them. All at once it seemed to me that this spirit was looking into my very heart, and it began to beat with unwonted quickness. I seemed in one moment to have attained to the state of the being referred to, to which was given the name "Suvóroff," but of which the value to any one of us was not more than that of a single bolt.

This was but a moment of madness. Then the vision passed entirely away, and there remained only a sensation of a sort of peculiar vigour, a kind of deep-seated determination.

I now found standing by me Captain Vernander, Senior Engineer, an old voyage companion and chum, who was angrily pointing out something to his Assistant. I had not heard what he had said, and I could not understand what it was that was so disturbing him, but if everything had been finally explained, it would have been neither better nor worse, for nothing could have been done to alter it.

"Don't be so very grumpy, old chap!" I said, as I linked my arm in his. "Rather let us go and have some tea, my throat is dry."

He merely cast upon me a look of surprise out of his sympathetic grey eyes, and without a word suffered me to lead him away. We went up into the ward-room, which, in ordinary times, was at this hour a well-filled and noisy part of the ship, but now it was almost deserted. Two or three officers "off duty," belonging to the next relief of gun crews, were sleeping soundly on sofas, so as to be near at hand in case of alarm, or to take their turn on watch. And just then an orderly on duty appeared opportunely, and served us with some tea.

Again all around there reigned the same painful stillness.

"The chief thing is—don't get flurried—one good shot is better than two bad ones. Remember, that we have no spare ammunition, and that we can't get any this side of Vladi-vostók." These were the words that reached us as they were uttered in a somewhat restrained tone of voice from behind the closed door leading to the stern casemate. They appeared to come from Midshipman Fomin.

"He's giving a lecture!" glumly ejaculated Vernander, as he sipped his tea.

I saw that he was very much put out about something, and wished to say what was in his mind.

"Well, tell me, old fellow! What is it that has gone wrong with you?"

He lowered his voice, and, after taking a look round, said:—"Its all this supply of cursed German coal. Don't you really know that we have already had several spontaneous combustions in the bunkers?"

"I know, but then, praise be to God, we have successfully put them out. Have there been any more?"

"Oh! that's not it! Not that! You understand that partially ignited and extinguished coal is altogether different from unburnt coal. The consumption of the first is enormous! As against good coal it is as 30 to 20!"

"Wait a bit, my dear chap! I'm truly astonished, and as for you, are you not becoming alarmed too hurriedly? You really cannot have already consumed our surplus stock! So that you should still have the full normal amount."

"Be it full or not full; by the morning we shall have less than 1,000 tons."

And the distance now to Vladi-vostók is 600 miles! What then?"

"Ah, have you forgotten the 'Tsesarévitch'? On the 28th July (9th August), after her funnels had been shot away, she burnt 480 tons every 24 hours. Now, what do you say? And I have a far greater consumption!"

"Not a *greater* consumption, but simply nerves that are upset," I said, trying to pacify him. "There have not been explosions in all the bunkers."

"You do not understand anything!" angrily retorted Vernander, and, hastily drinking off his tea and snatching up his forage cap, he rushed out to another part of the vessel.

I remained in the ward room, threw myself into an arm-chair, and, having made myself comfortable, I became drowsy, and began to doze, and so but indistinctly heard the changing watches at midnight.

At that hour some of the relieved officers came in to drink tea, and in low tones began to abuse the confounded rawness of the air on deck. Some one as he stretched himself out on a sofa gave vent to a feeling of satisfaction, and then loudly exclaimed: "Let us slumber till 4 a.m.! And may there be a festival in our street!" I also dropped off into a sound sleep.

Having slept until about 3 a.m. I again passed along the lower deck and so to the upper deck. The scene was the same as on the previous evening, except that it was lighter. The moon in her last quarter had already risen to some height, and on the edge of the fog, faintly silvered by her rays, was legibly delineated the reflection of the funnels, masts and rigging. Again a fresh breeze pierced one with the cold, and compelled one to bury the head deeper in the collar of one's overcoat. I went on to the fore bridge, where the Admiral lay asleep in an arm-chair. The Captain, in soft slippers, and with noiseless steps, was rapidly pacing the length of the bridge that extended right athwart the vessel.

"What are you roaming about for?" he inquired of me.

"To have a look round," was the reply. "Has he had any sleep?" was my question, as I inclined my head towards the Admiral.

"Only just this moment. I persuaded him to take a rest. Why should he not indeed? It may be said that the night has passed happily. Up to the present moment we have not been discovered—notwithstanding that they are still hailing each other. And now our discovery would be late. Two hours remain before dawn. Even if their torpedo-boats are near at hand, they will not succeed in bringing them all together. For how would they be able to find them in such weather? Look, the sternmost vessels of our Squadron are not in sight! If perchance anyone should casually knock up against us it would be the same as winning *the 200,000 roubles*[1] sweepstakes! It is only the wind that does not please me. It is freshening. May it not drive away the fog! If so, there may be no to-morrow for us. And there must be an end of the 'Suvóroff.' But if the weather should all at once thicken?"—and here he suddenly became more cheerful.—"For 24 hours they have been steaming about us and cannot see us." And if it should be the same to-morrow? Well, we should get clean away! They might crawl, move here and there, or hail one another—and there would be no trace of us. Their search would go on until we again appeared, but then that would be out of Vladi-vostók! And that would be another subject for conversation. But how angry they must be! We should ourselves be eaten up with ferocity! That would be fun!"—and here the Captain, in order that he might not awake the Admiral, smothered his mouth with his handkerchief, as he began to laugh so merrily and unconcernedly, that I even became envious.

It should here be stated that V. V. Ignatius was, from the first, amongst the number of the staunchest upholders of the opinion that our voyage was nothing but a desperate adventure, the success of which would entirely depend on the degree of co-operation on the part of St. Nicholas[2] and of the rest of the Heavenly Host. He also held

[1] This is said to be the principal lottery in Russia.—W.E.G.

[2] St. Nicholas, "The Complaisant." Probably the Saint of this name, who, as "Santa Claus," is better known throughout Christendom, for he is the Patron Saint of children. He was Bishop of Myra, in Lycia, a Province of Asia Minor, about 300 A.D.—W.E.G.

the belief, after an attentive study of the Japanese method of conducting naval operations—that of concentrating the whole weight of their fire on the enemy's flag-ship—that in the first decisive battle both he and his battle-ship would be doomed to inevitable destruction. But, having once made himself recognise this certain issue, he never for one moment lost his wonted cheerful and courageous bearing, for he was always joking, and making facetious remarks, whilst, at the same time, he displayed a keen interest in the various petty details of ship life and of his sailors' welfare. And now (and I sincerely believe it) he laughed heartily at the malice and disenchantment of the Japanese, which he had pictured to himself in the event of their really allowing us to give them the slip.

However, the Japanese won "*the two hundred thousand roubles* sweepstakes" and a good deal more. For at about 5 a.m., on the 14th (26th) May, their auxiliary cruiser "Sinano-Maru" almost drove her bows into our hospital-ships, and in that way she became aware of the presence of our Squadron, whilst she herself was not seen. From that moment we could no longer conceal from ourselves that we had been discovered. Indeed, the fact became immediately apparent in the changed character of messages that we intercepted. These were no longer the record of the reciprocal calls of men on the look-out, but the sounds of despatches emanating further and further from the north.[1]

Separate messages were now received from all sides, and therefore, by the Admiral's orders, for the protection of our defenceless transports from a sudden attack, the Scouting Division was ordered to close in on the rest of the Squadron.

About 6 a.m. the "Ural," steaming at full speed, overtook us. She bore a semaphore message, reporting that, whilst maintaining her position in rear of the Squadron, four vessels, which could not be identified because of the fog, had endeavoured to head her off as they approached from the starboard side

At 6.45 a.m., on our starboard quarter, the silhouette of some vessel was dimly visible. But as she approached nearer, we soon made her out to be the "Idzumi."

About 8 a.m., in spite of the fog, we were able to define her position to be 50 cables' length from us.[2] The alarm was at once sounded, and from the sternmost turret our 12-inch guns were threateningly raised, whereupon the "Idzumi" began to rapidly steam away, as though she discerned her danger.

Of course, we might have sent after her a good cruiser, and so have driven her still further away, but the vessels in our Cruiser

[1] Up to this moment, according to Japanese accounts, Togo, who, with his main body, was somewhere off Fusan, was completely ignorant of the exact point at which our Squadron had been discovered, and he therefore waited where he was until the same report had reached him, both from the south and north. The area within which this discovery took place was known as "Square 203." Togo at this time was with his battle-ships and cruisers at Masampho. For further information reference should be made to the Papers already cited on pp. 215 and 219 (February No. of JOURNAL) respectively of this translation.—W.E.G.

[2] A cable's length = 100 nautical *sájens* of 6 feet each, or approximately one-tenth of a knot.—*Author.*

At this reckoning the distance would be about 5¾ miles.—W.E.G.

Division, worthy of such a designation, were only two in number, viz., the "Oleg" and the "Aurora," and, perhaps, of the scouts the "Svietlána." Of the remainder the "Donskoi" and the "Monomakh"—worthy veterans—were of slow speed, though equipped with fair artillery. Then there were the "Ural" and the "Almaz," vessels of high speed, but, it must be said, possessed of a mere toy armament. Moreover, we might expect at any moment to have to encounter our formidable enemy, and then every gun and every projectile would be precious. And if it should really happen that our three Battle-ship Divisions would decide the fate of the battle in a combat with the twelve best Japanese vessels, then the rest of the Japanese fleet would fall to the lot of our Cruiser Division. It followed, therefore, that for such a contest we must husband our forces! And so for these reasons the Admiral scorned the bold approach of the "Idzumi," and did not send out a vessel to pursue her.

Close upon 9 a.m., a little in advance of our port beam, there appeared out of the fog, steaming almost parallel with our own course, the "Chin-Yen," "Matsushima," "Itsukushima," and "Hashidate." And a little ahead of them there was a small light cruiser, apparently the "Akitsusiu," but all these, immediately that we had well made them out (and they us), hurriedly sheered off in a northerly direction, and then, slowly increasing their distance, were lost to view.

A little before 11 a.m. we saw a division of light cruisers almost on our port beam. These we made out to be the "Chitose," "Kasagi," "Niitaka," and "Otowa."

It became evident that the decisive moment was approaching.

At a signal from the flag-ship, the First and Second Battle-ship Divisions increased their speed, and, turning "together" two points[1] to port, began to fall into position ahead of the Third Battle-ship Division. The transports were, at the same time, directed to alter their course more to starboard, so as to come astern of the Squadron in line ahead formation, the Cruiser Division was then ordered to cover them on the port side, and the "Monomakh" on the starboard side, so as to secure them from attacks on the part of the "Idzumi" and similar vessels.

At 11.20 a.m. the distance between our Squadron and the Japanese light cruisers was 50 cables' length.[2] It was at this time that an unexpected shot was fired from the "Orel" (as was promptly reported by semaphore from this battle-ship). It not being possible to determine, owing to the use of smokeless powder, from which of the leading vessels this shot had proceeded, the entire Squadron took it as a signal from the Flag-ship to open fire. The firing from the Third Battle-ship Division was especially brisk.

The Japanese cruisers then turned sharply to port, and, as they too opened fire, rapidly increased their distance from us.

On the "Suvóroff" the signal was then hoisted:

"Don't throw away shots uselessly."

Thereupon the firing from our vessels ceased.

The following order was then signalled:—"Ship's companies to go to messes in reliefs."

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[1] A *Rumb* = 11¼°.—*Author.*

Two points or *Rumbs* would therefore be 22½°.—W.E.G.

[2] See note on p. 323.—W.E.G.

At noon, being in the parallel of the southern end of the island of Tsu-shima, we shaped course N. 20° E. for Vladi-vostók.

The officers also in turn had a hasty meal. On this particular day it had been arranged to have, according to custom, a grand luncheon in the ward-room, at which the Admiral, the Captain, and the rest of the Staff were to have been present as guests. But on such an occasion it could not, of course, take place, since neither the Admiral nor the Captain could leave the bridge for a moment, and the other Staff Officers could only rush in to hurriedly eat something in the Admiral's private cabin.

Having gone down into my own cabin, in order to fill up my stock of cigarettes before the battle, I happened to casually enter the ward-room at a most solemn moment. Notwithstanding that all the courses were served together, and one ate them as they came, champagne was poured out by goblets and all present stood up in deep silence to receive the toast proposed by the Senior Officer, A. P. Macedonski, who said: "On this the most solemn day of the Sacred Coronation of Their Imperial Majesties, may God enable us to honourably serve our dear Fatherland! To the health of our Sovereign Emperor, and of our Sovereign Empress! To the well being of Russia!"

A cordial, loud "Hurrah!" resounded through the ward-room, and its echoes mingled with the clang of war alarms, as these were wafted from above.

All then rushed off to their appointed stations.

The Japanese light cruisers had once more approached us on the port side, but this time they were accompanied by torpedo-boats, and both displayed an evident intention of cutting right across our course.

Discerning that the plan of the Japanese was to approach close to our line of advance, and to throw out floating mines (as they did on the 28th July—9th August), the Admiral decided to change the course of our First Battle-ship Division by bringing these vessels with a front to starboard, and so drive off the enemy by menacing him with the fire of his five best battle-ships.

With this object the vessels of the First Battle-ship Division had firstly to turn "in succession" 8 points (90°) to starboard, and then had to again turn the same number of points "together" to port.[1] The first half of this manœuvre was excellently carried out, but with regard to the second half of the same, the "Alexander" misunderstood the signal and followed in the wake of the "Suvóroff," whilst the "Borodino" and "Orél," which had already begun to turn "together," imagining that they had made a mistake, stopped doing so, altered their helms, and again followed in the wake of the "Alexander." As a result of this misconception of the signal given, the First Battle-ship Division, instead of leading the other two divisions in line ahead formation, was now parallel with, and slightly in advance of, them.

Nevertheless, the manœuvre, though unsuccessful, attained a remarkable result; for the enemy's cruisers and torpedo-boats alarmed at the possibility of being caught between the fires of the two columns thus formed, and steaming towards them, abandoned the intention of cutting across our course

[1] See note with regard to these evolutions on p. 215 of the February number of this JOURNAL.—W.E.G.

and began to sheer off to port. In all probability it was these cruisers that reported to Admiral Togo that we were steaming in two columns. He was at this time out of sight, his vessels being a long way ahead and to starboard of us. In any case, he decided on passing over to our port side, so as to bring all his fire to bear upon our port and weaker column. Meanwhile, however, as soon as the Japanese cruisers and torpedo-boats had sheered off the line of our advance, the First Battle-ship Division increased its speed, whilst inclining at the same time to port, and thus resumed its original position at the head of the other two Divisions in line ahead formation.

It was 1.20 p.m. when the latter change of position took place, and when the signal floated from the Flag-ship:—"The Second Division will follow in the wake of the First Division."

It was about the same time, too, that far ahead of us, and but dimly distinguishable in the fog, steamed the enemy's main body. They appeared to be going right across our line of advance, from starboard to port, and approximately on a S.W. course. Having come out on our port beam, the "Mikasa" turned sharply S., followed by the "Shikishima," "Fujï," "Asahi," "Kasuga," and "Nishin."

Admiral Rodjestvensky and his Staff Officers were still on the upper fore bridge of the "Suvóroff," although the handling of the battle-ship should have been by this time carried on from the conning-tower.

To express myself frankly, I had not entirely agreed with the Admiral's idea, that Togo would command in person the whole of his twelve armoured ships, inasmuch as on the 28th July (9th August) he had not incorporated with his own six vessels the two armour-plated cruisers, which were then with his fleet, but had directed them to act independently. I was, moreover, inclined to think that Kamimura would act as he thought fit, so when I clearly saw before me the six old Port Arthur acquaintances, I could not restrain myself from exclaiming with some degree of triumph:—

"There they are, your Excellency! *all six*, as on the 28th July (9th August)."

The Admiral, without turning his head in my direction, made a gesture of dissent, and, just as he was moving towards the conning-tower, said:—"No, there are more of them; and they are all there!"

"To your posts, gentlemen," hurriedly called out the flag captain, as he followed the Admiral.

And sure enough in the wake of Togo's six vessels there gradually emerged from the fog, with slightly longer intervals between them, the six cruisers of Admiral Kamimura's command:—"Idzumo," "Yakumo," "Asama," "Adzuma," "Tokiwa," and "Iwate."

(To be continued.)

THE INFANTRY BATTLE FRONT.

(*A Lecture delivered before the Nagoya Garrison Society by Major MITAKE.*)

Translated from the *Kaikosha Kiji* (Officers' Club Journal), August, 1906, No. 346, by Captain E. F. Calthrop, R.F.A.

Communicated by the General Staff.

WITH reference to the infantry battle front and "fighting distribution, division into firing line, supports, and reserves," paragraph 281 of the Infantry Drill reads as follows:—"The frontage of a force will differ according as it is employed alone, or with other troops, whether in attack, defence, or retreat."

I will venture to put forward my views with reference to these instructions.

I will take the case of a battalion acting independently in attack. Here, although the ultimate object of the several companies of the battalion is the attack, their special functions will differ from each other; some will be charged with the main attack, others with the secondary attack, while others will be detailed for the decisive attack; and their frontage will differ according to their special tasks. Again, in order to use the ground most advantageously, differences in frontage will occur, a question which affects equally the battalions of a regiment acting alone and the regiments in a brigade.

Although the frontage of a body acting independently is usually smaller than when acting with other bodies, still, we must not forget that any difference of frontage only concerns the very first phase of the fight After the troops are seriously committed to the attack the frontage of a battalion acting independently is relatively smaller than when in co-operation.

The fighting duties or tasks assigned to the several companies of a battalion acting in co-operation, will usually be identical; also, on account of adjacent bodies, prolongation of the firing line on a flank by bodies in rear is impracticable, reinforcing to the front alone being possible. On the other hand, with a battalion acting alone, its companies having separate tasks, their frontages differ accordingly; the companies conducting the secondary attack will necessarily occupy two to three times the front occupied by the companies conducting the main attack. The latter will adapt their front to enable them to preserve their fighting strength up to the last moment, and the gradual additions to either flank of the firing line will automatically cause an extension of front. The companies charged with the decisive attack, reinforcing the main attacking companies, will, in front of the decisive point, overflow to either flank, and the whole firing line will be prolonged.

Speaking generally, therefore, the frontage is less, when acting in concert with other bodies. The drill book enjoins, what is of first importance, that at the first deployment the frontage should be small and the troops sparingly employed. This matter applies especially when acting independently and at the commencement of an action, before the enemy's intentions are known. The book has in view the main and decisive attack, when the maximum strength has to be retained and brought to bear on the decisive point. But, as demonstrated above, when acting in concert, as many men as possible may be brought into the firing line from the commencement.

I have spoken only of a battalion acting independently in attack, but the arguments hold good for the defence. Yet the extent of front depends, not so much on whether acting independently or in concert, whether attacking or defending, but on the different tasks devolving on the various bodies and the nature of the terrain forming the field of operations. If we refer to the drill book with reference to the combat of the brigade, regiment, and battalion, we find it stated in paragraphs 219 and 331 that each regiment will determine its own battle front and fighting distribution to suit the task with which it has been charged. Again, paragraphs 215, 322, 326 all confirm the fact that the frontage of a regiment cannot be laid down, as it depends on the objective, terrain, and relation to adjacent bodies, and that under all circumstances the regimental commander will assign to each battalion their respective duties. Again, paragraphs 315 and 317 do not lay down any fixed rules for frontage or fighting distribution, but merely say that the battalion commander allots to the companies their respective tasks, questions of frontage and distribution for depth depending on the ground and duty of the particular body.

The so-called "direction of the fight" consists practically of allotting the front, or, in other words, fighting distribution (for the two are interdependent). After these have been fixed we may say that the direction of the fight is, for all practical purposes, at an end, as any interference by the commander with the several parts of his command is impossible. The importance of the battle front and fighting distribution is therefore evident.

Here let us consider for a moment the terms, fighting objective, and fighting rôle or task as used in the drill book. The term "fighting objective" I take to be used in two senses, a broad and narrow sense; the former sense bears reference to the ultimate object, namely, of crushing the enemy; the latter sense to the immediate object or carrying out of the fighting task, as, secondary attack, main attack or decisive attack of each body.

To return to the discussion in hand, in attempting to discover the intentions of the drill book, we find that among the main rules for attack and defence contained at the end of paragraph 306, no rules for special natures of combats are laid down, nor instructions for holding attacks or demonstrative actions. In each of these cases it becomes the duty of the officer commanding to suit the frontage and fighting distribution to the needs of the situation. Again, at the end of the drill book, paragraph 344, the subject is not treated as a question of tactics, but merely some general rules are laid down, and, as I have previously maintained, the decisive action or action at the decisive point (whether in attack or defence) is the main object in view in the instructions for battle leading given in the drill book.

Other occasions must be dealt with by interpreting the spirit of the drill book. Further, most works on strategy and tactics treat of actions where main forces are opposed, as the battles of Liao-yang, the Sha-Ho, Mukden; assuming that if these be examined from all points of view, the features of engagements of other natures may be deduced. The drill book in the same way compresses the subject and lays down a standard for the decisive action, leaving it to the commander to make the necessary alterations for other phases of the fight.

In paragraph 124 of the drill book the interval between skirmishers is laid down at from 1 to 2 paces. This interval is intended as that to be preserved in front of the decisive point. Consequently, each man occupies from one pace to two paces of front. Paragraph 129 provides that extensions may be made to intervals other than those laid down; this non-regulation interval is for occasions other than in proximity to the decisive point. Limits are not given, but we may fix the minimum for each man at one pace, any further reduction preventing a free use of the rifle. Hence, except for very short periods this interval has the above disadvantage, and further, is liable to heavy punishment by the enemy.

The Company Front.—Paragraph 244 lays down that the front of a company at war strength (in extended order) should not exceed about 110 yards. At an interval of one pace, 133 men are required to occupy this front. But if from the outset we place 133 men in a front of 110 yards, not only are they open to heavy punishment from the enemy, but, as before stated, free movement and use of the rifle is mutually impossible. We cannot, therefore, preserve this number of rifles in the firing line until the final stage of the fight is reached. In paragraph 309 it is, therefore, laid down that, except on special occasions, extension is carried out by sections in succession. These special occasions, or occasions other than the main attack at the decisive point, will include the holding attack, false attack (or demonstration) and secondary attack. Excepting these special occasions here instanced extension by sections is the rule, and if the men of a section extend on the front of a company, the frontage of one man will exceed that laid down in paragraph 124. Further, the company commander can add to the firing line at least twice[1] a volume of fire equal to that at the outset from the sections held in reserve.

But except at the decisive point this frontage will usually be exceeded. For instance, a company conducting the secondary attack may increase the interval between skirmishers to over 3 paces. The frontage of a section is thus considerably prolonged, and if a company extends two sections at once, its frontage is greatly extended.

The drill book does not fix a company's frontage at other than 110 yards; except at the decisive point the frontage for other occasions, not being laid down, must be fixed by the company commander in relation to the ground and the special rôle assigned to his command.

The extent of front occupied by one man and the battle front of a company is the fundamental or basic infantry battle front. Battalions and larger units will adjust considerations of ground and rôle with regard to this as a basis, and form their plans accordingly.

The Battalion Front.—Paragraph 319 fixes the maximum frontage of a battalion in action with 4 companies deployed at 440 yards. But,

[1] A Japanese company is formed of three sections.

as the drill book points out, this arrangement not only leaves the battalion commander with no men in hand during the fight, but renders an extension of front in order to maintain connection with other corps a matter of difficulty. The front of a battalion should thus be kept as narrow as possible, part of it being kept in reserve. Now the control of the firing line is not only out of the province of the batttalion commander, but it is impossible of performance. During the course of the fight the only direction in which the battalion commander can use his control is in the disposal of the force stored in rear, either to increase the volume of fire in the firing line, or, by posting the necessary numbers in a certain spot, to bring a concentrated fire on a target. This is the extent to which the battalion commander can exercise his control in the firing line. Paragraph 209 lays down that companies should be brought into the firing line in succession, as occasion requires, the remainder being massed in reserve, and that at the first deployment one company at least should be placed in reserve. On this basis we find, therefore, that the battle front of a battalion will usually consist of from two to three companies, and be 220 to 330 yards in extent. While it is not specifically stated in the book, the front of a battalion carrying out a secondary attack, etc., will, as explained in the case of a company, be considerably extended. For instance, at the battle of Mukden a battalion of my regiment, which was carrying out a secondary attack, actually occupied a front of 880 yards. On this occasion the battalion was practically without reserves, except that each company was ordered to retain to the last one section in hand. This is an instance of how the battalion commander's powers, except to arrange for the renewal of ammunition, are practically nil during the fight. In the above instance the ground, as well as the situation, necessitated the front taken up, and the book does allow the commander freedom in the choice of front in accordance with the ground and his duties; still, the deployment of four companies on the front laid down and under cover of the ground, except when approaching the decisive point, is altogether impracticable. Unexpected collision with the enemy, pursuit, rearguard actions, outpost actions, etc., are termed in paragraph 306, special actions, and we see that on these occasions the battalion commander must suit his frontage to the situation.

The Regimental Battle Front.—The drill book lays down no standard for this. Paragraph 317 contains no fixed rules for the distribution of the battalion, and in the same way paragraph 326 says that no fixed standard can be laid down for the battle front of a regiment, simply the case of a regiment acting independently is taken as a model, and states that when first deployed a front of two battalions will rarely be exceeded.

When in action as part of a brigade the front of a regiment cannot well be laid down, as the regimental commander will very rarely have the whole of his command, three battalions, intact on the battlefield. The brigadier will require at least one battalion, and in all probability one from each regiment, to form a reserve, and for these reasons the drill book does not fix the front of a regiment. However, taking the front determined above for a battalion, we find that the front of a regiment forming part of a brigade, when first deployed, covers from 440 to 660 yards, that is, in the case of a regiment moving against the decisive point.

The Battle Front of a Brigade.—With regard to the battle front of a brigade at full strength the drill book speaks with greater

clearness than in the case of a regiment or battalion. Paragraph 324 puts the front of a brigade of 6 battalions when first deployed at 1,100 to 1,300 yards, 4 or 5 battalions being deployed. The former distance if 2 battalions are placed in reserve, the latter in the case of 1 battalion being in reserve. As stated before, this frontage only refers to the combat in front of the decisive point. Elsewhere the brigade would occupy 2,000, 3,000 yards, or more, front.

As stated above, the extent of front occupied in the combat before the decisive point, are, for a skirmisher, about two paces, and for a company about 110 yards. The usual front for a battalion is from 220 to 330 yards. The intervals between skirmishers and the front of bodies converging on the decisive point will naturally tend to diminish, and though diminution through losses will occur, they will be made good by the troops in rear to a certain extent. Thus paragraph 243 states that the front covered by the deployment should be entirely utilised, and the combat carried on by a compact skirmish line. Whether in attack or defence there is one method only of carrying the infantry combat to a successful conclusion, namely, the carrying of the decisive point by superiority of fire.

To attempt to carry a decisive point in the enemy's centre is not feasible in view of the power of modern firearms. The so-called frontal attack, or attempt to pierce the centre of the enemy's line, leads to self destruction; therefore, a choice of either flank alone remains. In this connection paragraph 288 says, that well-trained infantry can sweep clear with their fire an attack made at their front; paragraph 289, that, "in spite of any losses from the enemy's fire, infantry that meets the enemy's charge with a collected fire, makes a proper use of ground and entrenching tools, can, without further assistance, maintain its position secure"; and paragraph 393, that "an attack to be successful must be gained by superiority of fire. This is best gained by selecting a flank of the decisive point, and concentrating a converging fire upon it."

All the testimony from the recent war goes to show, both in large engagements and in small, that there has been but one method of attack, namely, the selection and envelopment of one wing of the decisive point; but, whether it be the selection of one wing of the decisive point, envelopment, or superiority of fire, all depend on the ability to bring superior strength to bear on the point under attack.

In any engagement it is impossible for either adversary to determine accurately with whom lies the superiority of strength. But the importance of determining this accurately is not essential. The prime necessity is the calculation of the relative superiority at the decisive point, for on this success depends. In order to bring superiority of strength up to the decisive point, and preserve the frontage laid down in the drill book economies in men must be made in other directions; in other words, frontages here must be in excess of those laid down in the drill book. As pointed out, troops on other parts of the field must occupy twice or three times the front held by those opposite the decisive point.

With modern firearms this relative extension of front can be made without risk, so I maintain that the front laid down in the drill book is that to be employed against the decisive point, or rather, one flank of it, and that elsewhere, as ground and circumstances dictate, double or treble the front should be occupied.

THE MILITARY RE-ORGANISATION OF CHINA.

Translated by permission of the French Minister of War from the *Revue Militaire des Armées Etrangères.*

A LAW for the re-organisation of the Chinese Army was published in the early days of January, 1905. It was the result of the joint work of the *Lien-Ping-Chou* (the Department for the Organisation and Instruction of the Army), and of the *Ping-Pou* (the Ministry of War). It was clearly inspired by the principles on which the Japanese Army was organised, and by the Regulations issued by Yuan-Chi-Kai in November, 1902, for the organisation of the troops in the province of Chi-Li.

This law was preceded by an explanatory statement enumerating a series of general maxims, of which the following are the principal:—

"All foreign countries have strong Armies, always ready for war with the object of avoiding war.

"It is necessary that there should be one uniform set of Regulations for the Army.

"To-day vigour and courage are nothing without instruction.

"Fire-arms only produce their best effects with men who have been well instructed and with leaders trained to command.

"There cannot be too many officers in time of peace; in war there is a rapid waste, and they cannot be improvised.

"There should be only rules for organisation, but they must be sufficiently elastic to allow of the particular conditions of each province being considered.

"The military instruction must be rigorously uniform and controlled on the spot by technical representatives of the Central Authority.

"A good organisation of the Army is indispensable."

General Organisation: Cadres and Effectives.—The Chinese Army is, for the future, to be "National," and no longer, as has been the case up to the present time, a heterogeneous one composed of provincial forces at the disposal of the different Viceroys.

It is to be divided into:—

The Active Army (*Tchang-Pei-Kiun*);
The First Reserve (*Su-Pei-Kiun*);
The Second Reserve (*Kho-Pei-Kiun*).

It is to be devoted entirely to preparation for war. The maintenance of order in the country devolving now upon the police and gendarmerie forces designated under the general heading of "Sun-Djin-Kiun."

The Army is to comprise infantry, cavalry, artillery, engineers, and train. It is to be provided even in time of peace with the necessary services.

It is to be divided into divisions of all arms.

36 divisions are to be formed between 1905 and 1922.

The new organisation is already in existence in Chi-Li, where three Chinese divisions *Tchang-Pei-Kiun* and a strong mixed brigade also of Manchus of *Tchang-Pei-Kiun* have been formed. Steps for carrying out the new organisation have also been taken in Shantung, Honan, and Shansi.

The Provinces of the Yang-tse in the West and South have already adopted the forms of *Tchang-Pei-Kiun* for the new troops, but the regular grouping into regiments, brigades, and divisions is not clearly fixed, due, probably, to the want of superior officers and generals worthy of the name. The effectives do not as yet correspond to those of the Army of the North, which is not astonishing during this period of transition, above all in China, where more than anywhere else, it is difficult to pass suddenly from one system to another. The Regulations, however, provide very wisely for the necessities of this period of transition and the differences of organisation, as the following passages show:—

"If a province possesses a level soil, it will need a larger proportion of field artillery; the train will be able to use large wagons and carts; the effective of the cavalry will be larger, and should be able to reach the strength of a brigade, for example, in a mixed division.

"If the country is mountainous, it will be necessary to have more mountain artillery; and the transport must either be by pack animals or small carts.

"If the province is cut up by canals and rivers, boats or porters will be required; the guns must be carried on animals, or, where that is impossible, carried by hand.

"Pay will vary with each province; the cost of food and clothing differing according to the country.

"If the financial resources of a province do not suffice for the maintenance of a division, its formation can be spread over a period of three years.

"The first year a brigade of infantry, a squadron of cavalry, a group of artillery, a company of engineers, and a company of the train will be formed. The second year, a regiment of infantry, a squadron of cavalry, a group of artillery, two companies of engineers, and two companies of train; the third year, the remainder of the division will be formed.

"If the resources of the province do not allow of realising the normal standard by the end of the third year, the number of units can be reduced in the proportion of a third or a fourth, without, however, going below these limits."

It follows, from the above, that the contingents of each province will not be entirely cast on the same model.

Before being able to compute the expenses entailed by the actual reform, it would be necessary to know the new rates of pay. One can, however, fix an approximate estimate, taking as the basis of valuation the expenses of maintenance of one of the divisions of Yuan-Chi-Kai, the Viceroy of Pechili. Now, according to the official reports of this Chinese dignitary, the pay and sustenance of the men and horses of a division amount annually to 1,500,000 taëls.[1] Conse-

[1]The taël is about 3·60 francs.

quently, 36 divisions, that is 450,000 men, would cost 54 millions of taëls, or some 200 millions of francs.

In this sum the cost of purchase of horses, *matériel*, and munitions is not included; nor the expenses of the schools, arsenals, manœuvres, barracks, reserve stores of all kinds, nor the pay of Reservists, pensions, etc. But, these particular expenses are absolutely indispensable to the proper working of the new Army; if they are authorised, the total above the military charges will be increased in considerable proportions, and, according to some estimates, would reach double, or a total of 400 millions of francs.

It will never be possible to procure such a sum under such an administrative and financial system as that which obtains to-day in China.

It is permissible, then, to have some doubts as to the continuance of the present military effort, unless the Japanese influence is sufficiently strong and persistent enough to modify the Chinese character. History shows, moreover, that military renaissances provoked by great crises have produced, up to the present, only ephemeral results.

Organisation of the Grand Units: Peace Footing.—The infantry, cavalry, and artillery are organised in regiments, the engineers and train in battalions.

The infantry regiments are grouped in brigades of two regiments; the cavalry regiments are to be so eventually.

The division comprises:—

The headquarters staff;
2 infantry brigades (4 regiments, 12 battalions);
1 regiment of cavalry (3 squadrons);
1 regiment of artillery (9 batteries);
1 battalion of engineers;
1 battalion of the train;
Band and ambulance.

On account of the small number of divisions organised at the present time, they are not for the time being, in peace time, grouped in Army Corps.

The divisions of the Chinese Empire are numbered, 1, 2, 3, 4, etc., the first numbers being reserved for Chi-Li and the provinces of the North. The headquarters of brigades and divisions are constituted in times of peace. Those of the divisions already existing are not yet complete, but will be shortly.

As *matériel*, the division counts 54 guns with caissons, 360 ammunition cases for draught mules, and 160 carts. In addition, 12 machine guns are attached to the regiment of artillery.

War Footing.—In time of war, the division can act either alone or grouped in Army Corps.

An Army Corps is composed of two, three, or four divisions, with its own headquarters staff.

Several Army Corps can be formed into an Army, which, in its turn, would have a headquarters staff.

The *Tchang-Pei-Kiun* is of too recent creation to possess trained Reservists. It is probable that the units would leave with their peace effectives, diminished slightly by a small *échelon*, to form the depôts.

The new Order does not provide for Reserve divisions; an eventuality yet very remote.

Organisation of the Infantry: Peace Footing.—The infantry (*pou-toé*) is grouped in brigades and regiments.

The brigade (*sié*) is composed of 2 regiments.

The regiment (*piao*) of 3 battalions.

The battalion (*ying*) of 4 companies.

The company (*toé*) of 3 sections.

The section (*paé*) of 3 squads.

The squad (*poeung*) of 14 men, including non-commissionedofficers and corporals.

The regiments of the same province take the numbers in natural series, 1, 2, 3, etc.

In each regiment the battalions are numbered from 1 to 3. In a battalion the companies are denominated: right, left, van, and rear.

War Footing.—In case of war, the effective of a company is to be doubled by an incorporation of Reservists; each squad, however, will remain at the same strength, but the section will consist of 6 squads.

The sergeants and corporals are taken exclusively from the Active Army.

As at the present time there are no trained Reservists, in case of mobilisation, it is probable the units would have to leave with their peace effectives.

The 1st Division alone, stationed in the front line at Yung-Ping-Fu, has possessed, since March of last year, a sufficiently strong proportion of three years' men; but it is doubtful whether, in existing circumstances, Yuan-Chi-Kai will decide to send them home and replace them by young soldiers.

In the 2nd Division, half the men have two years' service, the other half one year only.

In the 3rd Division the men have only one year's service.

Organisation of the Cavalry: Peace Footing.—The cavalry (*mà-toé*) is organised in regiments.

The regiment (*piao*) is composed of 3 squadrons.

The squadron (*ying*) of 4 divisions.

The division (*toé*) of 2 pelotons.

The peloton (*paé*) of 2 squads.

The squad (*poeung*) of 14 men, including non-commissioned officers.

The regiment bears the number of the division.

The squadrons are numbered from 1 to 3 in the regiment.

The divisions are denominated in each squadron: right, left, van, and rear.

War Footing.—The cavalry is always to be ready to move at once; in case of war its effective is not increased. Each squadron simply receives: 14 saddle horses, 12 mules, 5 wagons, 32 ostlers, and 4 wagon-drivers.

The regiment of Chinese cavalry, in time of war, is a veritable *Smala*, where the effective of non-combatants is equal to the half of the fighting effective; in time of peace the proportion is already over a third.

Organisation of the Artillery: Peace Footing.—The artillery (*pao-toé*) is organised in regiments.

The regiment (*piao*) is composed of 3 groups.

The group (*ying*) of 3 batteries.

The battery (*toé*) of 3 sections.

The section (*paé*) of 3 squads of 14 men, non-commissioned officers included.

The two first groups are provided with field *matériel*; the third with mountain.

The regiment bears the number of its division.
The groups are numbered from 1 to 3.
The batteries of each group are denominated: right, centre, left.

War Footing.—In case of war the batteries receive no addition of the combatant Reservists. The tables of effectives only mention the doubling of the wagon-drivers, the ostlers, and the men charged with the duty of feeding the horses.

Each field group receives, in addition:—

108 draught horses.
46 saddle horses.
36 spare horses.
6 baggage wagons.

Each mountain group receives:—

8 saddle horses.
144 pack horses.
36 spare horses.

The ammunition sections are constituted with the aid of Reservists, but there are no details as to their composition.

Organisation of the Engineers: Peace Footing.—The engineers (*koung-tcheung-toé*) are organised in battalions:—

The battalion (*ying*) is composed of 4 companies.
The company (*toé*) is composed of 3 sections.
The section (*paê*) is composed of 3 squads.

The squad (*poeung*) is composed of 14 men, including non-commissioned officers.

The battalion bears the number of its division.
The companies are named: right, left, van, and rear.

War Footing.—In case of war the engineer units are not strengthened. The battalion only receives:—

8 coolies;
24 mules;
8 carts.

The engineers are divided into detachments of pontoonists, sapper-miners, navvies, telegraphists, and telephonists.

Organisation of the Train: Peace Footing.—The train (*tseu-tcheung-toé*) is organised in battalions.

The battalion (*ying*) is divided into 4 companies.
The company (*toé*) into 3 sections.
The section (*paê*) into 3 squads.
The squad (*poeung*) is composed of 14 men, including non-commissioned officers.

The battalion bears the number of the division.

The companies are denominated: right, left, van, and rear.

War Footing.—In time of war the duty of the train is to transport:—

1. A part of the ammunition of the infantry and artillery;
2. Provisions;
3. Camp equipment;
4. The Corps Bridge Train;
5. Hospital and sanitary *matériel.*

The companies will be completed by Reservists, the effective of which will depend on the duty which will probably be imposed on the battalion.

In case the Reservists are insufficient, recourse will be had to the second Reserve, and, in case of need, to a levy of coolies. In the present state of the *Tchang-pei-kiun* the train can only be completed with the help of coolies.

The number of wagons and horses is to be quintupled at mobilisation by requisition. It is doubtful, however, if the 864 mules and 288 carts required to supplement each battalion in case of war could be rapidly laid hands on.

The Chinese Officers' Corps.—In 1900, at the time of the Boxer troubles, the Chinese officers' Corps only comprised a small number of men really worthy of the name, who came from the Military School founded at Tientsin by Li-Hung-Chang, and some other similar institutions, still in the embryo stage, at Nanking, Wuchang, Canton, Ningpo, and in Manchuria.

The greater part of the officers of the *Lou-ying* (troops of the Green Standard), and of the *Lien-kiun* (troops trained on the European model), had no military value. Profoundly ignorant, badly paid, and consequently remunerating themselves out of the pay of the troops, opium smokers, they never mounted a horse, scarcely ever showed themselves on the manœuvre ground, leaving to some young officers trained on the German model the duty of teaching the soldiers the automatic movements, and slow evolutions at the cadence step, in which the Chinese troops excel.

The number of these young officers attracted by lucrative situations as secretaries to Europeans, interpreters, and compradores, grew, moreover, rapidly fewer.

With regard to the Manchu officers of the "*Eight Banners*," they were inferior even to their Chinese colleagues.

Apart from the Shantung troops, which fortunately took no hand against the Allies, and those of Wuchang, the contingents from the other provinces were even worse commanded than those of Chi-Li.

In short, the Chinese Army, which possessed excellent raw material as soldiers, had no great value, because, with the exception of a few captains and lieutenants, its officers' corps was completely numerically inadequate and devoid of all military spirit and knowledge.

The Infiltration of the Japanese Influence into the Military Schools.—The appointment of Yuan-chi-kai, Governor of Shantung, to the Viceroyalty of Chi-Li, marks the commencement of a military renaissance in China.

This man—young, energetic, ambitious, and very autocratic—took up his appointment, bringing with him the body of troops which he had formed and trained, and which was to serve as a nucleus for a new army, and a rallying centre for the good elements of the old Chi-Li troops.

When tranquillity was restored in that province, Yuan created at Paoting-Fu a military centre of the first importance, where the schools, under the supervision of the best officers, took the first place.

A finishing school for officers, a staff school, a school for student-officers, a school for non-commissioned officers, and a school for topography, were brought into existence simultaneously, and received with the officers and officer-candidates of the province, the subjects of the adjoining provinces of Shantung, Honan, and Shansi, of which the troops, joined to those of Chi-Li, form to-day the "Army of the North."

The Dowager Empress quickly ordered the Viceroys and Governors to create, with as little delay as possible, military schools and new troops on the model of those of Yuan-chi-kai. This order, however, was not accompanied by any instructions dealing with the necessary details.

Some military schools were gradually formed in most of the provincial capitals; the old pupils of the Tientsin and Nanking schools, etc., furnishing the first instructors. The programme of the courses of instruction varied in the different provinces.

The School at Wuchang, however, under the direction of Major Hofmann, a German, was, in reality, with that at Paoting-Fu, the only one of real value. At that time the German instructors, with the object of favouring their own countrymen for commands of troops, strove to monopolise the military instruction of the Chinese, but it was not long before they were supplanted by the Japanese.

As a matter of fact, from 1901, some Japanese instructors found their way into the new schools. Contenting themselves with small salaries and secondary classes, speaking the Chinese language, much more submissive to the authorities than the Germans, they succeeded in persuading the Chinese that the Japanese had known how to take what was best from the Armies of Europe, and that the Japanese military training was the most suitable to the Yellow race.

It was at the end of 1901 and in 1902 that the sending of Chinese officer-students to the Japanese military schools commenced. After having passed the final examinations at these establishments, these students had to pass through a course of study in each branch of the Army, and they then returned to China as instructors and propagators of Japanese influence.

These students were treated at Tokio with the greatest attention; and the high Mandarins being satisfied with the results, the sending of them to Japan multiplied, as did also the Japanese instructors in China.

Chang-Chi-Tung, as well as the other Governors, were all successively gained over by the Japanese influence, and unanimously demanded from the Throne the exclusive adoption of Japanese methods and the employment of Japanese instructors, in the various civil, military, naval, and police establishments.

This state of things was not modified by the war in Manchuria.

It was then at the Japanese instigation that the *Lien-ping-chou* was created, the medium of administration and centralisation which immediately took precedence over the old Ministry of War. It applied itself at once to the formation of a strong corps of trained officers, and proceeded with this object to the creation, on a unique plan, of a system of military schools, working on similar lines.

Plan of Re-organisation.—It was necessary, first of all, to raise the prestige of the officers and better their pecuniary position, in order to attract young men of good birth to the military schools. With this object a recent decree has restored to the officers the assimilation with the Mandarinate which they formerly possessed. On the other hand, their pay was raised again, and will continue to be so by degrees.

In what concerns instruction the following measures have been settled:—

The candidate for officer must be between 15 and 18 years of age, be robust, in good health, of good character, and must not be an only son; he must also have received a good primary education.

Admitted into a "*Preparatory School*," analogous to the German Cadet Schools, he will remain there three years, during the course of which he will develop his general knowledge, and begin his military instruction.

After examination at the end of the third year, he will enter a "*Secondary School*," and there receive, in addition to his secondary education, elementary instruction in military science.

After two years' study in this school, he will serve for four months as a non-commissioned officer or private, after which he will be transferred to the "*Military School*" proper, where he will continue his studies for eighteen months. He will then be attached for a second period of six months to a regiment, when he will do the duties of an officer. If recommended by his commanding officer, he will undergo a final examination at the School, and will be definitely appointed to a regiment as lieutenant in charge of a section or company, according as he is classified.

The candidate for officer will thus receive his commission between the age of 22 years 4 months and 25 years and 4 months, according to his age when he joins the "*Preparatory School*."

After two years' service he can, if he is clever, be nominated for the Superior School of War, from which, after two years of higher study, he will be transferred for staff service or duty in the schools.

Other officers can also go through higher courses in the higher grade schools of each branch of the service.

There is one Preparatory School for each province; four Secondary Schools; one Military School for Officer-Students; and one Superior School for the whole Empire.

In the meantime, while the new system is getting into working order, recourse will be had, in order to meet present needs, to a system of "*Schools of Rapid Instruction*," which will furnish lieutenants after two years of study.

With regard to officers not coming from these schools, they will have to pass through successively finishing courses of instruction.

Actual state of Chinese Military Instruction.—At the present time China possesses 35 Military Schools or units of instruction, with 6,300 pupils, viz.:—

4	Finishing Schools	787 officers.
23	Schools for Student-Officers	3,448 pupils.
8	Non-Commissioned Officers' School or Instruction Battalions	2,072 ,,

In addition, the Chinese Government will maintain in Japan 168 officers and 523 student-officers, now that the effective of the pupils detached to the European Schools does not exceed some fifteen.

Taking the whole, in China as well as in Japan and Europe, the number of officers completing their instruction is 955; that of student-officers exceeds 4,000, and to these numbers it is right to add 2,070 pupil non-commissioned officers.

At the present time, the total number of officers turned out annually from the Chinese Military Student Schools and from the Special Military School at Tokio (Chinese section) is 800, of which 96 come from Japan. It will decrease gradually up to the time when the future military school (proper) will furnish its first quota for promotion.

Starting from about 1912, and in conformity with the Regulations for the schools, the total annual effective of promotions should be 1,500. When the system is in full working order, there will be in China:—

In the Preparatory Schools ...	6,000	Cadets (2,000 per year).
In the Secondary Schools	3,600	Students (1,800 ,, ,,)
In the Military School (Proper) ...	3,200	Students (1,600 ,, ,,).
Total	12,800	

These effectives take into account some probable wastage. There ought to be 1,500 cadets annually for promotion to officers, and 2,000 are entered each year.

All the present student-officers are far from being of the same value; those from Chi-Li, Hu-Peh, and Ngan-Hui, to the number of about 1,450, are much the best, but they are not as good as those sent to Japan.

The Chinese Officer.—It is evident from what we have said that China, under Japanese pressure, is making exceptional efforts to form a body of trained officers; but this end can only be attained by a considerable expenditure of time and money. An officers' Corps cannot be improvised, even in 15 years, the period of time allowed for the formation of the necessary cadres to the 36 divisions of all arms, which are to compose the future Chinese Army. It will require at least a military generation, that is to say, thirty years for the young officers trained in the new school to reach the upper grades of the military hierarchy.

For the moment, the Chinese officer has not the true qualities of the military chief. He has a good general knowledge, and can get through the automatic work of manœuvres; but, when he has to act on his personal initiative, he requires a prompter.

The superior officers are by preference administrative heads; they seem lost as soon as they have units in their hands, and the most part of the time they have to be assisted by young advisers, taken chiefly from among those who have been through the Japanese schools. To an even greater degree this holds good among the officers of the highest rank.

One can say that in the main, four-fifths of the Chinese officers only know the letter of the Regulations, and are quite unable to grasp the spirit. They scarcely possess, as a general rule, the faculty of mastering what they are taught.

Their behaviour, nevertheless, before the troops and apart from the service, is excellent. The practice of sports is, however, not in favour among them; the cavalry officers, mounting quiet Mongol horses, are not horsemen; the infantry officers practice gymnastics a little during the two years after they leave the school; but they do not persevere and neither practice fencing, nor racing, nor athletics, as in Japan. From this results a taste for indolence, often aggravated by the habit of taking opium.

To resume, with some rare exceptions to be found among the young men leaving the Military Schools, the Chinese officer cannot yet be compared with either the European or Japanese. Nevertheless, the effort China is making at present is very remarkable, and there is every ground for supposing that the improvement in the present state of things will continue to an extent which it would seem impossible, however, at present to determine.

(To be continued.)

NAVAL NOTES.

HOME.—The following are the principal appointments which have been made:—Rear-Admirals—G. A. Callaghan, C.B., to Command of Fifth Cruiser Squadron; R. S. Lowry to be Rear-Admiral in the Channel Fleet. Captains—R. H. Stokes to "Tamar," as Commodore 2nd Class at Hong Kong; E. C. Troubridge, C.M.G., M.V.O., as Chief of Staff to Vice-Admiral Sir C. C. Drury, K.C.B., K.C.S.I.; F. C. D. Sturdee, C.V.O., C.M.G., as Chief of Staff to Admiral Lord C. Beresford, G.C.V.O., K.C.B.; H. B. Pelly to "King Edward VII."; B. M. Chambers to "Bulwark"; A. Hayes-Sadler to "Drake"; P. Hoskyns, C.M.G., M.V.O., to "Barfleur," and to Command ships with reduced crews at Portsmouth; The Hon R. F. Boyle, M.V.O., to "Prince George"; C. L. Napier to Charge of Naval Establishments at Sydney; A. J. Henniker-Hughan to "Exmouth"; R. Phipps-Hornby to "Glory"; H. H. Torlesse to "Victorious"; G. R. Mansell, M.V.O., to "Osborne"; P. Vaughan Lewes, D.S.O., to "Nile."

Admiral of the Fleet Sir A. K. Wilson, G.C.B., G.C.V.O., hoisted his flag as an Admiral of the Fleet on board the "Exmouth," on the 4th inst., the flag being struck at sunset the same day on Sir A. Wilson relinquishing his command of the Channel Fleet. Admiral Lord Charles Beresford, G.C.V.O., K.C.B., hoisted his flag the same day on board the "Centurion" on succeeding to the command of the Channel Fleet in succession to Sir A. K. Wilson; the flag was struck at sunset, and on his return from leave Lord Charles will rehoist it on board the "King Edward VII.," his new flag-ship.

Admiral Sir Day H. Bosanquet, K.C.B., hoisted his flag at Portsmouth on the 9th ult. on assuming the command in succession to Admiral Sir A. L. Douglas, G.C.V.O., K.C.B.

Vice-Admiral the Hon. Sir A. G. Curzon-Howe, K.C.B., C.V.O., C.M.G., assumed the command of the Atlantic Fleet on the 23rd ult. at Lagos, on the termination of the combined manœuvres, in succession to Vice-Admiral Sir W. H. May, K.C.V.O., who is taking up the position of Second Sea Lord; Sir W. May arrived at Portsmouth on the 26th ult., his flag being struck on the 4th inst. Sir A. Curzon-Howe, whose flag is at present flying in the "Cæsar," will transfer it to the "Exmouth," his new flag-ship, in April.

Vice-Admiral H.S.H. Prince Louis of Battenberg, G.C.B., G.C.V.O., K.C.M.G., transferred his flag from the first-class armoured cruiser "Drake" at Gibraltar on the 24th ult. to the "Venerable," and assumed his appointment as Second-in-Command of the Mediterranean Fleet; on the same day the flag of Rear-Admiral C. H. Adair was hoisted on board the "Drake" on assuming command of the Second Cruiser Squadron in succession to Prince Louis.

Vice-Admiral Sir R. N. Custance, K.C.M.G., C.V.O., hoisted his flag on board the first-class battle-ship "Hibernia" on the 26th ult., as Second-in-Command of the Channel Fleet; Rear-Admiral G. Le C. Egerton, C.B., who has been flying his flag in the "Hibernia" as Rear-Admiral in

the Atlantic Fleet, having transferred his flag on the 1st ult. to the first-class battle-ship "Albemarle."

Vice-Admiral Sir C. C. Drury, K.C.B., K.C.S.I., will hoist his flag on board the first-class battle-ship "Queen" at Portsmouth on the 20th inst. as Commander-in-Chief of the Mediterranean, with the acting rank of Admiral. The "Queen" arrived at Plymouth on the 19th ult. from Lagos and the Mediterranean, and paid off at Devonport on the 4th inst., recommissioning on the following day. She is to be ready for sea on the 15th inst., when she will leave for Portsmouth to embark the Admiral and his staff.

Vice-Admiral F. C. B. Bridgeman, C.V.O., lately Second-in-Command of the Mediterranean Fleet, hoisted his flag at Sheerness on the 5th inst. on the first-class battle-ship "Majestic" on assuming command of the Home Fleet; Vice-Admiral Bridgeman will eventually fly his flag in the first-class battle-ship "Dreadnought."

Rear-Admiral F. S. Inglefield hoisted his flag on the 8th ult. on board the first-class cruiser "Grafton" at Portsmouth on assuming command of the Fourth Cruiser Squadron, his flag being transferred later to the first-class armoured cruiser "Euryalus."

Captain Sir G. Warrender, Bart., C.B., C.V.O., hoisted his broad pennant as Commodore of the First Class in command of the East Indian station on the 1st ult. at Devonport; the ship later proceeded to Chatham, where she completed to full sea effective, and she left on the 19th ult. for her station.

The first-class battle-ships "King Edward VII.," "Prince George," and "Mars" paid off at Portsmouth on the 4th inst., and recommissioned on the 5th inst. as the flag-ships of the Commander-in-Chief of the Channel Fleet, flag-ship of the Rear-Admiral of the Portsmouth Division of the Home Fleet, and for service in the Devonport Division of the Home Fleet respectively.

The first-class armoured cruiser "Bedford" commissioned on the 5th ult. at Chatham for service on the China station, where she will relieve the first-class protected cruiser "Diadem"; she left Devonport on the 8th inst. for her destination.

Navy Estimates, 1907-1908.—Précis of Statement of First Lord of the Admiralty.—The Estimates presented to Parliament show a reduction of 1,000 men, from 129,000 in 1906-1907 to 128,000 in 1907-1908, and, as I explain below, a reduction of £1,427,091, from £31,869,500 to £30,442,409.

Personnel.—The changes in the establishment of the War Course College which have been in progress during the past year were completed in November, 1906, by the commissioning of H.M.S. "Terpsichore" at Portsmouth, as the headquarters of the War Course College, in command of Captain E. J. W. Slade, M.V.O., R.N., under whose superintendence the courses had previously been conducted. The War Courses had been started earlier in the year at the port, in the building which had been at one time the School of Naval Architecture, and which required only small structural alterations in order to adapt it to its new purpose. The War Course College as now constituted will be in the same position as the gunnery and torpedo establishments, and will rank among the fleet services and no longer among the purely educational services with which it was at first associated. In placing the headquarters of the War Course College at Portsmouth, care has been taken to provide for the

continuance of modified courses at Devonport and Chatham, where lectures have been given on strategy, tactics, naval history, and international law and modern improvements in marine engineering, besides other naval and military subjects. One full course was held last year at Portsmouth, which was attended by 38 naval, marine, and military officers. The course which commenced in October has been attended by 40 officers. The full war course at headquarters has been extended to four months, and lectures were given during the course on the following subjects: Marine engineering, naval history, international law, tactics, trade, wireless telegraphy, organisation of signal stations, armour plates and explosives, telegraph cables, mining, gun mountings, control of fire and effects of fire, combined operations and coast defence, battle practice.

Representations having been made that existing engineer officers under the orders promulgated since 1902 have not been given certain advantages which they had been led to expect at the time the new scheme of entry and training was promulgated, and it being also desirable to ascertain whether further instructions are necessary, with a view to the qualification of officers for duties with the Royal Marines under the new scheme, a Committee consisting of executive, engineer, and marine officers has been appointed to consider the matter. Their enquiry has only just been completed, and their report has not yet been laid before the Board. It is not, therefore, possible to indicate the nature of their recommendations.

The education of naval cadets under the system introduced in 1903 is making satisfactory progress. The first batch of cadets will complete their educational course on shore, and leave Dartmouth for training in a sea-going cruiser after next summer term. The most recent reports from the officers and masters at Dartmouth confirm in a remarkable way the anticipations formed of the present method of selection of candidates, which has settled down from being a tentative experiment into a permanent system. The cost of the thorough education given at the two Naval Colleges obliges the Admiralty to call upon the parents for a substantial contribution towards it; but in the case of officers of the Navy and Army who can show that the fees paid are a serious burden, a large reduction is made in the charges. The question of finding means to extend this privilege of reduction of fees to such other parents as may need it deserves careful consideration. One exhibition for this purpose has already been provided through the generosity of a private donor. Possibly county or other public authorities may be led to follow this example and that of the Argyll Fund, founded for the benefit of Scottish boys, and provide for naval cadets who belong to their several districts.

I have already stated that the number of men has been reduced by 1,000. The present number of seamen borne is in excess of requirements, while the number of stokers is still less than is needed for manning the fleet. The entries of boys have therefore been continued at the same reduced total as last year, viz., 1,500, and this has permitted of the entry of a large portion of the stokers required to make good the deficit. As the seamen drop to the required strength, the stokers will be increased. This process, however, takes time, as notwithstanding the popularity of the Royal Fleet Reserve, only a limited proportion of men can be allowed to take their transfer to the Reserve before the completion of their ordinary engagements.

The question of rating, advancement, and conditions of service of seamen and petty officers has been carefully reviewed during the year, and certain proposals, having for their principal object the improvement in the position and responsibility of the petty officer, are now under con-

sideration with a view to their adoption in the course of the coming financial year. At the same time, it is proposed to establish a new rating of telegraphists for working the wireless telegraph instruments independently of the signal branch, which has hitherto conducted those duties.

From the 1st April last a new system of training for the Royal Naval Reserve was introduced, its main features being the substitution of modern ships at the home ports for shore batteries as the place for carrying out drill and training. By the end of 1906 some 1,300 men and 186 officers accepted service under the new system. Recruiting for the Royal Naval Reserve was reopened in November, and in the coming year it is proposed to enter 1,000 seamen and stokers, 60 engine-room artificers, and 80 officers. The introduction of the gratuity of £50 after 20 years' service in lieu of pension at the age of 60 has been apparently much appreciated, as practically all the men who completed the necessary service since the 1st April have elected to take the gratuity. The commanding officers of His Majesty's ships in which the Royal Naval Reserve men have been embarked for training report satisfactorily on the men; 530 seamen and 230 stokers have been embarked for training since the 1st April, 1906, in addition to the 587 stokers who served during the manœuvres, some of whom elected to count this service in lieu of their biennial training.

In the spring of 1906 some 120 of the 590 men forming the Newfoundland Reserve visited England during an extended cruise on board three of His Majesty's ships. The most favourable impression was created by their general appearance, and the commodore in command of the squadron reported in high terms as to their conduct and efficiency. Good reports are received from the Colonies of the other branches of the Naval Reserve there established; and the Royal Naval Volunteer Reserve at home continues to justify the high expectations which were formed of this body when first raised three years ago.

As indicated in last year's Statement, the training of boy artificers and mechanicians has been reorganised on the new lines—the former has been concentrated at Portsmouth and Chatham, and the latter at Devonport. The placing of these training establishments under the control of an inspecting captain has been attended by good results, and there is every reason to believe that the scheme of training, now well established, will fulfil the expectations entertained by those who initiated the policy. Candidates of good qualifications are presenting themselves for training as mechanicians, and though a small proportion have had to be eliminated in the early stages of their training, the remainder have shown themselves fully competent to meet the demands of the instructors. It has not been possible yet to test the mechanicians who have been trained with a view to their undertaking duties in the engine-room, as the men who were put through the new course of training have only just been drafted to sea-going ships. The same may be said of the boy artificers. Those first entered have only just completed their four years' course, and arrangements are now being made for them to join ships for their first work as engine-room artificers of the 5th Class. With one or two exceptions they have passed out of the training establishments with credit.

I am glad to be able to report a very striking increase in the improvement already begun under former Administrations in the gunnery of the fleet. In battle practice, by which the gunnery organisation of the ship as a whole is tested, and which is therefore the best criterion of efficiency, the average number of hits per ship in 1906 was practically double that of the previous year, although the conditions in the last year were considerably more difficult than before, the mean range being 1,000

yards greater, and the time available for firing one minute less. In the test of gunlayers with heavy guns, which is a necessary preliminary to battle practice, but during which the efficiency of the gunlayers and guns' crews alone is tried, the average number of points obtained per man was 68·26 in 1905, as compared with 80·065 in 1906, or, comparing the percentage of hits to rounds fired, it was 56·58 against 71·12. In the test of gunlayers with light Q.F. guns the percentage of hits to rounds fired rose from 21·63 in 1905 to 34·53 in 1906. In the battle practice of the torpedo-boat destroyers there was a corresponding increase in efficiency, the percentage of hits to rounds fired being 20·02 in 1905 and 34·60 in 1906. It is particularly satisfactory that the improvement is general throughout the fleet, and not by any means confined to a picked selection of crack ships. The greatest credit is due to all the officers and men who have worked together to produce this result.

Shipbuilding and Repairs.—The new construction for the year will cost £8,100,000, as against £9,235,000 for 1906-7. It will include two or, unless an understanding between the naval Powers be arrived at by the Hague Conference, three large armoured vessels of the "Dreadnought" type. They will be of slightly larger displacement than the "Dreadnought," and full advantage will be taken of experience of the "Dreadnought" in carrying out the details of their construction, motive power, and armament. One fast unarmoured cruiser, five ocean-going destroyers, twelve first-class torpedo-boats, and twelve submarine-boats are also provided for.

£7,340,618 will be spent on the continuation of ships already begun; £759,382 in beginning new ships; of this, £107,100 will be devoted to the fast unarmoured cruiser to be laid down at Pembroke; £307,482 on torpedo vessels and submarines; £344,800 on new large armoured vessels.

Between the 1st April, 1906, and the 31st March, 1907, the following ships will have been completed and become available for service:—

4 battle-ships ("Africa," "Britannia," "Hibernia," "Dreadnought").
3 armoured cruisers ("Achilles," "Cochrane," "Natal").
7 first-class torpedo-boats.
11 submarines.
Floating dock for submarines.

On the 1st April, 1907, there will be under construction:—

5 battle-ships.
7 armoured cruisers.
8 ocean-going torpedo-boat destroyers.
17 First-class torpedo-boats.
12 submarines.
1 royal yacht ("Alexandra," expected to be ready in September next).

The strike on the "Clyde" will probably cause some delay in the completion of ships building in yards in that district.

H.M.S. "Dreadnought" was commissioned on the 11th December, 1906, 14 months after being first laid down. This remarkable achievement in shipbuilding reflects the greatest credit on all who were connected with the work, both at the Admiralty and at Portsmouth Dockyard. A certain amount of overtime had to be worked in order to produce this record, but there is no occasion to repeat it, and I do not intend to permit overtime to be worked in the yards in future, except in cases of pressing necessity, and then sanction on each occasion must be specially obtained.

The trials of the "Dreadnought" have given the highest satisf ction; she has completed more than 7,000 miles at sea, and her passage from Gibraltar to Trinidad—a distance of 3,400 miles—was accomplished at an average rate exceeding 17 knots an hour.

Distribution of the Fleet.—A further development of the redistribution of the fleet, in continuance of the policy instituted under Lord Selborne, and explained by him in his Memorandum of 6th December, 1904, has recently been resolved upon by the Board of Admiralty. The redistribution of 1904 permitted of a sufficient concentration of *personnel* to man all fighting ships in home waters with nucleus crews, amounting to two-fifths of their full complement, and also to provide on shore at each home port a balance of men always ready to man two armoured ships. The further distribution of naval strength now resolved upon will provide a considerable increase in all nucleus crews of ships in the first fighting line, and the complete manning of squadrons of six battle-ships and six armoured cruisers which will not leave home waters. These twelve ships, together with forty-eight destroyers with full crews, some small cruisers, and the requisite auxiliaries, will be concentrated at the Nore, and will do their practices and sea service in the North Sea, and will be constantly ready for any emergency. The nucleus crew system will thus be maintained and strengthened in the constitution of the Home Fleet. The crews of the vessels at the other ports must fluctuate, according to the demands made for the provision of foreign reliefs and for other causes, but will not, except in the small cruisers, fall below three-fifths; more often there will be an excess over this number.

The term "in reserve" will no longer be applicable; all sea-going fighting vessels in the home ports, not belonging to other fleets or squadrons or appropriated for training purposes or local defence, belong to the Home Fleet, and will be able to complete to full crew at a few hours' notice. Certain vessels of older date have hitherto been described as "in special reserve"; in future such vessels will be kept fit for service and provided with crews sufficient to keep their machinery in good order and the ships ready for the duties required of them. I should explain that the Home Fleet is still in process of development, and that it will be some time before it can reach its full strength.

As the fleets at home will continue to be combined for war under the orders of the Commander-in-Chief of the Channel Fleet, the Channel, Atlantic, and Home Fleets will carry out periodic peace exercises together under his command at such times and places as the Admiralty may direct. As indicated in the Admiralty Minute of the 23rd October, 1906, the Fifth Cruiser Squadron (the Nore Division) of armoured cruisers will be detached for exercises with the Channel and other Fleets as desirable.

Considerable administrative improvement is expected to result from the organisation of the Home Fleet. It has been necessary heretofore to deal separately with the distribution and arrangement of each of the existing Reserve Divisions. The position of the Rear-Admiral in Command of Torpedo Craft and Submarines has been somewhat anomalous, inasmuch as he has been under the orders of more than one senior officer. The administrative command of all these divisions and vessels being now centralised in the Commander-in-Chief of the Home Fleet, a far better organisation should be achieved than has been possible with a divided responsibility. His headquarters are at Sheerness, and he will occupy the house vacated by the transfer of the residence of the Commander-in-Chief at the Nore from Sheerness to Chatham.

HOME.

The status of the Commander-in-Chief of the Home Fleet and that of the flag officers and vessels under his orders will be similar to that of the flag officers and vessels of the Channel and Atlantic Fleets when they visit the home ports; that is to say, for the time being they come under the command of the senior officer present, but that senior officer will not interfere with the administration and orders of the officers in command. The Home Fleet in no way interferes with the *rôle* of the Channel and Atlantic Fleets, except in the event of a totally unforeseen outbreak of war during their absence from home waters; they will still occupy the principal fighting position.

The First Squadron of armoured cruisers, under the command of Rear-Admiral G. Neville, C.V.O., will visit Hampton Roads in the early summer, on the occasion of the opening of the Jamestown Exhibition by the President of the United States of America.

The fleet at sea will begin the new year without its most distinguished and capable figure through the termination of the appointment as Commander-in-Chief of the Channel Fleet of Admiral Sir Arthur Wilson, V.C., G.C.B., one of the ablest and most trusted commanders the Navy has had in recent years. Sir Arthur Wilson has a fine record of service as a most efficient officer at sea, in the battle-field on shore, as an administrator at the Admiralty, where he was Controller of the Navy, and finally as the Commander-in-Chief for six years of the most important of His Majesty's fleets. In spite of the sound and wise demand for young flag officers, there are still occasions when the whole Navy regrets the inevitable operation of the age rule, and it is a notable one indeed when Sir Arthur Wilson brings to a close his last command afloat.

I append the usual statement of work done in the Department :—

Home Fleet.

The Home Fleet will be constituted by April next as follows :—

Battleships: Nore (with full complement).—"Dreadnought" flag of Commander-in-Chief), "Bulwark" (flag of Rear-Admiral), "London," "Magnificent," "Majestic," "Victorious."

Portsmouth.—"Prince George" (flag of Rear-Admiral), "Glory," "Goliath," "Canopus."

Devonport.—"Empress of India" (flag of Rear-Admiral) (to be replaced by "Cæsar" in May), "Mars," "Hannibal."

First-class cruisers: Nore (Fifth Cruiser Squadron) (with full complement).—"Leviathan" (flag of Rear-Admiral), "Cochrane," "Duke of Edinburgh," "Achilles," "Natal," "Warrior" (to join in May).

Portsmouth.—"Cressy," "Berwick," "Essex," "Argonaut," "Terrible," "Ariadne," "Diadem," "Spartiate" (to join in May).

Devonport.—"Carnarvon," "Donegal," "Cumberland," "Cornwall," "Niobe," "Europa," "Andromeda," "Amphitrite."

Smaller cruisers: Nore.—"Dido," "Vindictive," "Charybdis."

Portsmouth.—"Gladiator," "Eclipse," "Fox."

Devonport.—"Doris."

NEW CONSTRUCTION.

Battle-ships.

The "Dreadnought" has been completed, passed through all her trials successfully, and commissioned.

The three later ships of the "King Edward VII." class, viz., "Britannia," "Africa," and "Hibernia," have been completed, and passed satisfactorily through all their trials, attaining a speed of about 18¾ knots at full power. They have been commissioned, so that the eight vessels of this class are now on service.

Three ships of an improved "Dreadnought" type have been laid down, viz., the "Bellerophon" at Portsmouth, "Temeraire" at Devonport, and "Superb" at Elswick.

The "Lord Nelson" and "Agamemnon" have both been launched, the machinery is mostly in position on board, and the general progress is satisfactory.

Armoured Cruisers.

The four later ships of the "Duke of Edinburgh" class have successfully passed through all their steam trials, reaching a speed of about 23¼ knots. The "Cochrane," "Natal," and "Achilles" will have been delivered by the contractors complete and ready for commission by about the end of this financial year; the fourth vessel, "Warrior," will be completed at Pembroke Dockyard early in 1907-8. These four ships are sister vessels to the "Duke of Edinburgh" and "Black Prince," except that four 50-calibre 7·5-inch guns are carried in single turrets on the upper deck, in lieu of the ten 6-inch guns in battery on the main deck in the first two ships of the class.

Two of the armoured cruisers of the "Minotaur" class have been launched during the year, the "Minotaur" at Devonport and "Shannon" at Chatham, and are now being prepared for their trials. The third ship of the class, "Defence," will be launched at Pembroke in April.

The three large armoured cruisers "Inflexible," "Indomitable," and "Invincible" were laid down in February, March, and April, 1906, respectively, and have made good progress, being nearly ready for launching.

Unarmoured Cruiser.

A design of a fast unarmoured cruiser has been prepared, and the ship will be laid down at Pembroke early in the next financial year. In this design special attention has been given to her capabilities for accompanying destroyers and acting as a parent ship in addition to carrying out the peace duties of a light cruiser.

Destroyers and Torpedo-boats.

Four first-class torpedo-boats (called coastal destroyers in last year's Statement) have been delivered. It is expected that three more will be delivered before the end of the financial year.

The remaining five of these vessels are well advanced, and will probably be delivered during the next few months.

Eighteen designs (including alternatives) for the twelve first-class torpedo-boats and two ocean-going destroyers provided for in the current Navy Estimates have been examined and orders provisionally placed.

Submarines

The last vessels of the "B" class, ordered in 1904-5, have been completed and delivered, and are now on active service.

Four of the eleven "C" class boats, ordered in 1905-6, have been completed and delivered, and it is anticipated that four more will be completed by 31st March next.

HOME.

Five more boats of the "C" class have been ordered, and these boats will be well advanced by 31st March next; two boats of the same class have been laid down at Chatham.

23rd February, 1907. TWEEDMOUTH.

Q.F. Gun Practice in the Fleet.—Following closely upon the issue of the results of the gun-layers' test with heavy guns for 1906, the Admiralty have now published the result of the test of gun-layers with light Q.F. guns and the result of battle practice from torpedo-boat destroyers. In circulating these results for information, their lordships note in both cases their great satisfaction at the very marked improvement in the results as compared with those obtained in 1905. These tests, like those of guns of larger calibre, are carried out annually, and are similar in nature, the target used being 6 feet by 8 feet and the range varying from 700 yards to 1,000 yards according to the calibre of the gun. In the case of the destroyer battle practice, officers may render assistance to the men, but the gun-layer is the only person permitted to fire. With each return an abstract of the firing for 1905 and 1906 is given, the following tabular statement being that which is prefixed to the result of the test of the gun-layers with light Q.F. guns in His Majesty's fleet, 1906:—

	1905.	1906.
Number of ships that fired	86	89
Number of guns	1,118	1,421
Number of hits	2,228	4,666
Number of misses	8,291	8,845
Percentage of hits to rounds fired	21·63	34·53
Hits per gun per minute :—		
12-pounders	2·12	3·417
6 and 3 pounders (except Vickers)	1·97	3·358
3 pounders (Vickers)	—	8·144

It will be seen from the above table that the percentage of hits to rounds fired is more than half as much again what it was in 1905, and that the rate of hitting has also improved considerably.

With the 3-pounder guns of Vickers type, mounted in three ships, the "King Edward VII.," and the two cruisers, "Black Prince" and "Duke of Edinburgh," an average of over eight hits per gun per minute was made, which is indeed wonderful shooting, even when it is remembered that these guns are fitted with the latest pattern telescopic sights. In the order of merit with 12-pounder guns, the Atlantic Fleet stands first, with the "Hindustan" as best ship; and this ship, it is to be noted, was fifth in order of merit in the gunlayers' test with heavy guns. Out of 160 rounds fired with this nature of gun, 98 hits were made, with a rate of 7·64 hits per minute. Four other squadrons were above the average in the 12-pounder firing, these being the Second Cruiser Squadron, with the "Berwick" as best ship; the Third Cruiser Squadron, headed by the "Leviathan"; and the China Squadron, with the "Kent." The "Kent" and "Exmouth," of the Channel Fleet, tied for fifth place in order of merit; but the best ship in that fleet was the "Glory," with 64 hits out of 103 rounds fired. The East Indies Squadron, represented by the "Hermes," the flag-ship, and the only ship carrying 12-pounders in the squadron, stands last in order of merit, with 19 hits out of 66 rounds

fired. Fourteen ships out of 55 which fired with this nature of gun come below the "Hermes," and a very much larger number have scored under the average. With 6- and 3-pounder guns, omitting the 3-pounder of Vickers type, the Atlantic Fleet again stood first in order of merit, the "Majestic" being the best ship in the fleet, with 79 hits out of 150 rounds fired. The "Hindustan" again shows up well, being the second ship in order of merit, with 98 hits out of 190 rounds fired. Of the squadrons, four, in addition to the Atlantic Fleet, are above the average. These are the Third Cruiser Squadron, with the "Lancaster" as best ship, 17 hits out of 28 rounds fired; the Cape of Good Hope Squadron, with the "Forte" as best ship, 40 hits out of 110 rounds fired; the Mediterranean Fleet, in which the "Diana" and "Minerva" tied; and the First Cruiser Squadron, with the "Hampshire" as best ship. The Australian Squadron is at the bottom, and the best ship in this squadron tied with the "Hermes" and "King Alfred," these three vessels standing 43 in order of merit out of 84 ships. With these classes of guns, only 31 ships, or a little more than a third, were above the average, and some ships appear to have done very badly indeed. The "Patrol" only made one hit out of 70 rounds fired, the "Alacrity" four out of 64 rounds fired, the "Skipjack" four out of 30, the "Proserpine" eight out of 77, the "Kent" three out of 18, the "Flora" four out of 36, and the "Drake" three out of 25. This is a great pity in the case of the "Drake," which has otherwise made excellent firing.—*Times, etc.*

FRANCE.—The following are the principal appointments which have been made: Capitaines de Vaisseau—H. P. G. Bûchard to "Catinat" and Command of Naval Division of the Pacific; J. B. Degouy to Command of Corsican Naval Division; J. M. Barnouin to "Jules Ferry." Capitaines de Frégate—J. M. Clarke to "Latouche-Tréville"; V. E. Fontorbe to Command of Fixed Defences at Rochefort.

Abolition of Chaplains in the Fleet.—A Ministerial Decree has been published abolishing the Corps of "Aümoniers de la Marine" in conformity with the votes of the Chamber and the Senate, and notwithstanding the intervention of Admiral de Cuverville in the latter Chamber. The appointment of Aûmoniers to ships and naval hospitals will now, therefore, be discontinued. Those serving at present will receive the pensions or other compensation to which they are entitled.

General.—The battle-ship division, consisting of the "Masséna" (flag), "Carnot," and "Jauréguiberry," which left Brest on the 7th ult. for Toulon, arrived at that port on the 13th ult., and will be transferred to the Reserve Squadron of the Mediterranean.

The coast-defence battle-ships "Bouvines," "Amiral Tréhouart," "Henri IV.," "Jemmapes," "Valmy," "Furieux," "Requin," "Caïman," "Indomptable," at present in the normal reserve at Cherbourg, are to be placed in the urgent normal reserve, which means that they are to be kept ready for rapid mobilisation.

The new first-class battle-ship "République," which recently arrived at Toulon from Brest on completion, was commisioned on the 15th ult. for service in the Mediterranean Fleet, where she will relieve the first-class battle-ship "Bouvet," which is intended to be placed in reserve at Toulon, preparatory to thorough repair and overhaul.

The new first-class armoured cruiser "Jules Ferry," during her recent passage from Cherbourg to Toulon, was ordered to proceed at 20

knots speed for four days. This speed could only, however, be maintained for one day, owing to defects developed in the condensers, which are now under examination at Toulon.

The second-class armoured cruiser "Latouche-Tréville," commissioned at Toulon on the 1st inst. as tender to the Gunnery School, in which duty she relieves the "Calédonien"; at the same time the officers and cadets and school of helmsmen, will be transferred to the ships of the First Division of the Reserve; the "Calédonien" is to be sent to Brest, where she will serve as an additional training ship for seamen.

The first-class protected cruiser "Jurien de la Gravière," which has been relieved in the Atlantic Division by the second-class cruiser "Jean Bart," arrived at Lorient on the 16th ult., at which port she is to be paid off.

The second-class cruiser "Descartes," which flies the broad pennant of the senior officer commanding the East Indian Division, has arrived at Toulon for repairs and refit, on completion of which she will return to her station.

The third-class cruiser "Lavoisier" is to be commissioned on the 20th inst. for service on the Icelandic Fisheries during the coming season. As there will be no special division commissioned this year for the Newfoundland Fishery Protection duty, the third-class cruiser "D'Estrees" will be detached on this service from the Atlantic Division.

Blowing up of the First-class Battle-ship "Iéna."—A terrible explosion occurred about 1.30 p.m. on the 12th inst. at Toulon on board the first-class battle-ship "Iéna," flying the flag of Rear-Admiral Manceron, commanding 2nd Battle-ship Division of the Mediterranean Fleet at Toulon, which has resulted in great loss of life and the partial, if not complete, destruction of this fine ship. The cause of the disaster has yet to be discovered, but it seems highly probable that it was due either to the premature explosion of a 12-inch shell or to the spontaneous explosion in the after magazine of what is known as B powder, which seems to be very liable to decompose and give off a dangerous and poisonous gas—a circumstance known to have been responsible for more than one disaster, including the explosions on board the battle-ship "Amiral Duperré" and the "Forbin."

The ship at the time was lying in one of the docks, and was nearly ready to be floated out; during the forenoon of the day in question the Marines had been occupied in the shell-rooms in the delicate and important work of packing the shells in flax, with the object of preventing them being thrown against each other by the movement of the ship. The men had only resumed work some ten minutes after the dinner hour when a loud explosion was heard, followed a moment or two later by a second far more terrible one, which seems to have completely destroyed the stern of the ship and set the after part in flames. It was some time before anyone could approach the ill-fated vessel to render assistance, and a considerable time elapsed before it was found possible to flood the dock, when the fire was at last extinguished, after it had gutted nearly two-thirds of the ship.

The loss of life has been very great, as it is stated that at least 118 officers and men have been killed, while a considerable number have been hurt, and others are still missing. Among the officers killed were Flag-Captain Adigard, Capitaine de Frégate Vertier, Chief of the Staff to Rear-Admiral Manceron, Lieutenant Thomas, and the chief engineer. Rear-Admiral Manceron is slightly wounded.

The French shells are made of the very finest high tensile steel, and they are charged with melinite, a picric acid explosive of high power. It is said to be the custom in the French Navy to keep the shells ready fitted with detonator and fuse, the fuses being filled with fulminate, which makes them very ready in their action, but necessitates their very careful handling, as a blow or a fall might be sufficient, as has been proved, to explode either the charge or the fuse and detonator, when, as in this case, so dangerous and sensitive an explosive as fulminate is used.

The "Iéna" was a comparatively new ship, having been launched at Brest in September, 1898. Details as to her dimensions, armour protection, and armament will be found in the Frontispiece, which shows her on her full-speed steam trials off Brest, and which, although given in the JOURNAL some five years ago, in view of the disaster which has overtaken her, it is thought it might be of interest to reproduce.

The Loss of the "Jean Bart."—News was received on 19th February from Las Palmas, brought by a British steamer, that the cruiser "Jean Bart" was ashore on the Barbary Coast, W. Africa, in lat. 22·9 N., long. 16·52 W., about 80 miles N. of C. Blanco. Orders were immediately telegraphed to despatch to her assistance the aviso "Goëland" and yacht "Jeanne-Blanche" from Dakar, the cruiser "Forbin" from Tangiers, the armoured cruiser "Gloire," Rear-Admiral Philibert, from Brest, the armoured cruiser "Condé" from Toulon, and the transport "Drôme" from Lorient. The "Jean Bart," which is one of the ships of the Atlantic Division, left Las Palmas on the 10th ult. with orders to visit the Bay of "Lévrier" and the adjacent coast, where a good deal of smuggling of contraband of war had been reported as going on, and it was presumably while carrying out this duty that she went on shore.

Information has since been received from Dakar that Enseigne de Vaisseau Parlier, of the "Jean Bart," had arrived there in a Spanish schooner, and reports that the cruiser went ashore on the 12th ult. between the small island of Pedra de Galhe and the coast, and that she was leaking in several places. Rafts had been constructed for landing provisions and stores, and all the crew were safe on shore. According to the latest information all hope of saving the ship has now been abandoned. The "Jean Bart" is a 2nd class cruiser of 4,160 tons displacement and a speed of 19 knots. She has a crew of 374 officers and men, and was launched at Rochefort in 1886.

Boiler Explosion in Torpedo-boat No. 339.—A serious boiler explosion took place on No. 339 torpedo-boat off Lorient on 9th February, by which nine men lost their lives. No. 339 is commanded by Lieutenant Degrenand, and was carrying out her reception trials. The explosion took place when under a steam pressure of 17 kilos. (38 lbs.), causing a back draught of flame into the stokehold. The accident is due to the rupture of a boiler tube, and it is thought that proper attention to the closing of stokehold doors had not been paid, or the back draught would not have taken place. It is surprising that as many as ten men were in the small stokehold at the time, but it is supposed that on account of the severity of the weather some of the deck hands had gone there for warmth and shelter. No. 339 is one of a batch of fifty torpedo-boats ordered by M. Pelletan in 1904. She was built at Nantes, her dimensions being 99 tons; length, 38 m. (124 feet); beam, 4 m. 25 (14 feet); 2,000-I.H.P.; speed, 26 knots; crew, 2 officers, 37 men; cost, 450,000 francs (£18,000).

FRANCE.

M. Lockroy's Letters in the "Temps" on the French Navy (continued).—If the counsels of the peace party, who ask for a cheaply-built fleet of small vessels, be listened to, it will mean the downfall of France for all time.

People who wish to give us a Navy of small craft probably hardly know one end of a ship from the other, and nothing about the sea or naval warfare. Of course, we cannot foretell the future, and a day may come when the Navy will be again transformed; but that day has not come yet, and because small torpedo vessels may admittedly do good service, it is absurd to draw from this the conclusion that only small craft should be built. It is as if someone was to say revolvers are excellent weapons, therefore let us arm our soldiers only with revolvers.

It is true that submersibles are the most formidable vessels for their size that have been constructed, submarines are also necessary for the defence of our coasts, torpedo-boats may inflict great losses on the enemy, and it is also true that the torpedo is a terrible engine of destruction when it hits the mark and that its power in the future may be largely increased, while at present it is hard to see how any battleship can be made invulnerable to its attack; nevertheless it does not follow that the torpedo should be our only weapon and such small craft our sole type of vessel. Torpedo craft are formidable, but their radius of action is limited, and a heavy sea prevents them using the torpedo, even if it does not keep them in port. What kind of a Navy would that be which could only act in calm weather?

It is the custom of those who favour the small craft view to invoke the name of the illustrious Admiral Aube. It is true that he advocated and foresaw a great vote for the defensive flotilla, but if his budgets are examined it will be seen that, together with torpedo-boats, he caused to be laid down several large vessels. Will he now be accused, as is Admiral Fournier after the publication of his recent report, of inconsistency and treachery? It is evident that his view was, and his acts appear to prove it, that if flotillas are necessary and considerably increase the power of a Navy like that of France, that nevertheless large battle-ships are also necessary for us to help us to gain supremacy at sea. If he did not think this, why did he order these battle-ships to be commenced?

It is true that in Admiral Aube's day the problem of submarine navigation had not been solved and that the appearance of the submergeable and submarine has given to flotillas an importance greater than before. It is certain that the submergeable type, due to the genius of M. Lebœuf, has a great future before it, but at present these vessels have the same defects as torpedo-boats, namely, a limited radius of action and poor sea going qualities, and this is just what the partisans of these small boats refuse to see.

To support the desire for the exclusive construction of small vessels the experience of the last manœuvres is quoted. Undoubtedly the flotillas were very successful in their atack, but we must qualify this by stating that they were commanded by very highly trained officers, and that the sea was invariably an oily calm; lessons must not be drawn from these manœuvres which they do not really convey. What takes place in the barrack-square is not a sure guide as to what may happen on the battle-field.

When we set out to consider the value of a certain arm, we must study its effects in real warfare, though as regards the late war the facts have often been greatly distorted. It is said, for instance, that the capsizing of the Russian ships at the battle of Tsushima showed the use-

lessness of the armoured belt. The facts are that the Russian ships were so laden with coal that their belts were submerged, and their capsizing is therefore due in great measure to their being unprotected. It is often also said that during this war torpedo-boats played a most important part. It is simply fooling the public to say this. When and where was this so? Was it on the 7th February, when the Japanese boats did not succeed in sinking a single Russian vessel? Was it when they fruitlessly chased the "Tsarevitch" without being able to bring her to? or was it when they succeeded in firing a torpedo at her without doing any harm? Was it at Tsushima, when the heavy sea kept the torpedo-boats in port during the battle, all that they were able to do being to finish off the already disabled ships, a great mistake by the way, as those same ships would have had to surrender in any case, and might now be forming part of the Mikado's fleet.

Did the Port Arthur torpedo-boats on a single occasion hamper the operations of Togo? Can it be proved that the Japanese lost a single ship through the torpedo-boats of the defence? I will allow that the boats were not well managed, and were commanded by inexperienced officers, and that English, French, Italian, or German officers would probably have obtained better results; anyhow, the Russian boats did little or nothing. When Rodjestvensky alluded to his defeat he said: "Battle-ships of the future must be armed with the heaviest guns"; but not a single word did he say about torpedo attacks, otherwise he would probably have asked for more small guns.

But there is one fact which ought to settle this question. Both Russians and Japanese have had practical experience of a naval war; the shells they have fired at each other have taught them the value of the weapons at their disposal; both small and large vessels were employed in action, so that they are in a position to judge of their rival merits. If small craft are the most valuable; if they are capable of taking the effective part attributed to them, surely both Russians and Japanese would now only be building small craft, seizing the occasion to have both a cheaper and a more formidable naval force; but what do we see? They are doing exactly the opposite: Russia is laying down large battle-ships, and Japan has commenced the construction of ships of 19,000 tons, armed with the heaviest guns.

All nations have closely followed this gigantic struggle between two rival Navies; all have been well informed as to what has taken place by their naval attachés; and America and Germany, like England, have come to the conclusion that it is necessary to hurry on the construction of large battle-ships of 19,000 and even 20,000 tons, seeing that in the present condition of the naval problem, powerful artillery fire will alone give victory in battle.

We should, then, take warning, and prefer the opinion of the sailors of the two worlds to those of the peace party.—*Le Temps, Le Yacht*, and *Le Moniteur de la Flotte.*

UNITED STATES.—*Navy Target Practice.*—Rear-Admiral George A. Converse, U.S.N., Chief of the Bureau of Navigation, has made an interesting report of target practice in the Navy with small arms, 3-inch field pieces, and boat guns, for the year ending 30th June, 1906.

Rear-Admiral Converse points out that the various separate reports from which his report was compiled frequently showed the stamp of hurry and carelessness. The summaries, he states, were often not properly made out, and in many cases it was impossible to determine exactly

what the columns of figures meant. We make the following extracts from the report:—

Next year the standing of vessels will be arranged according to the merit attained by combining the results of the four kinds of practice each vessel is required to hold, viz., individual range firing, collective firing, practice with 3-inch field pieces, and boat gun practice. Ships failing to carry out any of these practices will be given a zero for such practices.

The facilities for training men and the number of ranges available for practice are increasing all the time, and it is to be hoped that a marked increase in efficiency in the use of small arms will be effected during the coming year. Gallery practice on board ship has been discontinued, but in its place has been substituted the sub-target gun, which, experience shows, gives better results. Gallery practice may still be held at yards where galleries exist, and will prove valuable training, in addition to the use of the sub-target gun. In regard to scores made with the sub-target gun, attention is invited to the fact that the miniature target is an exact reduction of the standard target for the various ranges, and that the action of the machine is errorless, no account being taken of the normal errors of the gun. Therefore, pointers should be taught not to be satisfied with bull's-eyes unless the prick is made near the centre of the bull's-eye. To make sure of a bull's-eye under normal conditions on the range, the riflemen must hold on a virtual bull's-eye two inches in diameter instead of eight; and so with the sub-target gun, many of the bull's-eyes scored are good only for centres.

In individual range firing, it appears that 10,581 officers and men completed the prescribed course during the year. Of the above, 36 qualified as sharpshooters and marksmen, 374 as first class, 1,019 as second class, 1,793 as third class, 5,312 as fourth class men, and 2,047 qualified in the requirements of A and B, but failed to qualify as fourth class. In addition to the above, a good many midshipmen at the Naval Academy, and officers and men attached to the Navy rifle team, qualified as sharpshooters, and an effort has been made at Newport, Norfolk, and Annapolis to qualify all apprentice seamen and midshipmen in slow fire, at least, before they finish their respective courses.

While the showing is better than has ever been made before, it is believed to be far below what it should be. It would seem that with an unlimited allowance of ammunition, the growing convenience of ranges, and the prizes provided for by law, the efficiency of our *personnel* as marksmen might be vastly improved.

In very few cases has the full amount of the cash allowance been awarded, owing to the shooting not being up to the requirements. For example, the "West Virginia" could have won 380 dollars in prizes, and only received 12 dollars; the "Alabama" could have had 342 dollars, and only received 24 dollars; the "Ohio" and the "Paul Jones" were the only two vessels that received the full amounts they were entitled to. Thus out of forty-four ships that carried out the practice, only two had enough men in the marksman, first and second classes, to permit the sum allowed by regulations to be awarded in prizes. The proper sum of money to pay these prizes is appropriated by Congress and allotted to that purpose, and a large proportion of it is frequently returned to the Treasury for the reason that the men competing for prizes have not made the scores necessary to entitle them to the award. It is not believed that the present requirements are too difficult if training and practice are properly carried out; but lax or unintelligent methods of training, an

insufficient amount of instruction practice, or a hurry to complete the practice must necessarily affect the scores adversely, and defeat the end contemplated in the offer of prizes.

The following is the standing of vessels in individual range firing, with the final merit out of a possible 100:—"Raleigh," 34·295; "Baltimore," 27·854; "Paul Jones," 27·000; "Yankee" (2nd), 26·323; "Perry," 25·326; "Wisconsin" (2nd), 25·241; "Raleigh," 23·560; "Cincinnati," 23·251; "Nevada," 18·969; "Truxtun," 18·571; "Wisconsin" (1st), 18·506; "Nashville," 18·362; "Iowa," 17·987; "Bainbridge," 17·561; "Kearsarge," 17·512; "Hopkins," 17·500; "Monadnock," 17·258; "Paragua," 17·000; "Indiana," 16·767; "Wolverine," 16·667; "Rainbow," 12·259; "Frolic," 15·821; "Barry," 15·812; "Texas," 15·733; "Missouri," 15·670; "Decatur," 15·667; "Yankee," 15·234; "Yankton," 15·192; "Barry," 15·185; "Elcano," 14·651; "Illinois," 14·228; "Macdonogh," 14·138; "Maine," 13·912; "Concord," 13·900; "Florida," 13·679; "Tacoma," 13·247; "Chicago," 13·163; "Colorado," 12·523; "Kentucky," 12·465; "Boston," 12·342; "Stewart," 12·308; "Denver," 10·890; "Pennsylvania," 10·304; "Des Moines," 9·869; "Alabama," 8·773; "Maryland," 7·831; "Princeton," 7·619; "West Virginia," 7·079; "Villalobos," 6·809; "Arayat," 6·470; "Olympia, 6·103; "Arkansas," 5·130; "Worden," 5·000.

In the belief that proficiency in small arms practice would be furthered by placing this practice on a competitive basis, definite values have been assigned to the men who attain each class in practice during the year, and the total value a ship thus obtained, divided by the number of men who completed the course, represents her final merit. The following values are assigned:—Sharpshooters and marksmen, 100; first class men, 60; second class men, 40; third class men, 20; fourth class men, 10. These values are assigned arbitrarily, representing the relative skilful training necessary to make a ship's company average the separate classes more nearly than anything else. To assign the weights by scores obtained during the last year after the manner of computing great gun practices would be impracticable, for the reason that the actual scores are not furnished the bureau, and also for the reason that pointers of great guns are almost invariably highly trained men, while even fairly trained men form a small percentage of those who fire through the courses of small arm practice. It will be observed that a sharpshooter is assigned the same value as a marksman. This was so decided because many marksmen are unable to qualify as sharpshooters on account of there being no range available. Moreover, most men who have attained the marksman class can, with very little extra training, be qualified as sharpshooters. Men failing to qualify fourth class are valued zero. They would probably be a menace to the safety of the landing force to which they belonged instead of an asset of efficiency.

In collective firing the standing of vessels and the final merit out of a possible 100 was as follows:—1, "Cincinnati," 34·0; 2, "Raleigh," 33·4; 3, "Denver," 26·6; 4, "Des Moines," 23·7; 5, "Rainbow, 20·9; 6, "Florida," 18·4; 7, "Texas," 15·1; 8, "Nevada," 14·0; 9, "Wolverine," 13·8; 10, "Arkansas," 12·7.

In the standing of companies, the Marines of the "Raleigh" stood No. 1 with a final merit of 39·9. The first company of the "Connecticut" was second with a final merit of 39·5.

In firing with 1-pounder boat guns, the standing of vessels, with the average hits per minute, was as follows:—1, "Missouri," 7·25; 2, "Arkansas," 3·50; 3, "Maryland," 2·50; 4, "Kearsarge," 2·00; 5,

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"Colorado," 2·00; 6, "Indiana," 1·88; 7, "Texas," 1·83; 8, "Iowa," 1·00; 9, "Alabama," ·50. Gunners' Mate E. L. Jacobus, of the "Missouri," had the best record among the gun pointers. He made an average of twelve shots per minute, the average hits being 9·0. Seaman J. C. Fyock and Private T. Gillman, also of the "Missouri," tied for second place with an average of twelve shots per minute and an average of 8·0 hits per minute.

In firing with Colt automatics and Gatling guns, the "Illinois" made the best record, the average hits being 27·0 per minute. The remaining vessels stood in the following order:—"Maine," 21·4; "Nevada," 17·5; "Kentucky," 16·0; "Florida," 14·0; "Maryland," 10·0; "West Virginia," 8·3; "Texas," 7·5; "Arkansas," 6·0; "Olympia," 5·8; "Denver," 4·3. In gun pointing with the Colt automatic guns, Seamen W. P. Burns and E. E. McGuire, of the "Illinois," tied for first place with 249 shots per minute, the average hits being 36·5.

In firing with 3-inch field pieces, the "West Virginia" had the best record with a total of 942 points, the points obtained by the four pointers being 235·5. Seaman S. T. Kawatzky, of the above vessel, made the best record as a pointer, with a total of 382 points.

In firing by armed boat crews, the crew in the electric launch of the "Florida" made the best record with 58 per cent. There were twenty-two men firing, the number of shots being 264; number of hits, 154; the mean range being 200 yards; the target used was 8 feet by 12 feet 9 inches. The launch was anchored in a choppy sea with a stiff breeze blowing along the line of fire. Two volleys and ten shots per man were fired at will.

Speaking of the collective firing, Rear-Admiral Converse states that this form of practice is practically undeveloped. The standard, he says, is by far the easiest to attain of any established for this practice. The target is large enough to catch even the very badly aimed shots, and a rate of fourteen shots per minute is all that is required in the fire at will. The greatest weakness lies in the fact that the petty officers in command of squads are, as a rule, unaccustomed to their duties. Another reason for poor scores lies in the fact that men are seldom taught to aim accurately when simulating volley firing, a simultaneous pull being considered the height of excellence. The practice with boat guns develops the fact that in some instances the boat guns as mounted are really unserviceable, owing to the mount being insecure, and there being insufficient room for the service of the piece. As to the method of computing total points in the practice with field pieces, Admiral Converse states that for this practice the element of time has been disregarded; the results, when the time element is considered, are too disappointing. Some strings, fired without setting the time fuse, required upwards of twenty minutes—over five minutes between shots. In firing with 3-inch field pieces, it is stated that the accuracy when firing shell with fuses set at safety was fair, but the action of the fuses when set to explode was erratic.

Considerable trouble is being experienced by the Navy Department in obtaining a satisfactory trial run of four hours of the new armoured cruiser "California," built by the Union Iron Works of San Francisco. After having made an excellent showing in her standardisation run, in which she showed a speed of over 22 knots, the ship has failed twice in her four hours' test. Both times the failure was due to heated bearings or other defective machinery. The last trial was held on 25th October, when the "California," after an hour and a half, developed heated

bearings, which made it necessary to stop the run. The Navy Department has notified the contractors that they must satisfy the naval inspector that the ship's machinery is all right before another attempt will be made to give her the required four hours' test. The "South Dakota" will not be tried until the trial of the "California" has been finally completed.

The following was the degree of completion on 1st January, 1907, of vessels under construction for the U.S. Navy :—Battle-ships—"Nebraska," 98 per cent.; "Connecticut," 100 (completed with the explosion of trials of machinery, which have been postponed in order to meet the exigencies of the Service); "Vermont," 97·5; "Kansas," 96·9; "Minnesota," 98·5; "Mississippi," 70·68; "Idaho," 66·78; "New Hampshire," 60·8; "South Carolina," 5·08; "Michigan," 3·01. Armoured cruisers—"California," 97·4; "South Dakota," 94·8; "North Carolina," 69·16; "Montana," 63·59. Protected cruisers—"Milwaukee," 99·96. Training-ships —"Cumberland," 99·9; "Intrepid." Scout cruisers—"Chester," 59·42; "Birmingham, 56·6; "Salem," 56·5. Submarine torpedo-boats—No. 9, 90, No. 10, 82·7; No. 11, 92; No. 12, 81·1.—*U.S. Army and Navy Journal.*

MILITARY NOTES.

HOME.—The following are the principal appointments which have been made :—

Lieut.-Generals—Sir J. D. P. French, G.C.V.O., K.C.B., K.C.M.G., Commanding-in-Chief, Aldershot Army Corps, is promoted to the rank of General.

Major-Generals—E. de Brath, C.B., C.I.E., I.A., to be a Brigade Commander in India. Sir B. M. Hamilton, K.C.B., Commanding 2nd Division, is promoted to the rank of Lieut.-General.

Colonels—B. Fenton, I.A., to be a Colonel on the Staff in India. H. J. S. Landon to be Inspector of Gymnasia, India. Hon J. E. Lindley, from Commandant, Cavalry School, to be a Brigadier-General to Command a Cavalry Brigade. W. H. Birkbeck, C.B., C.M.G., to be Commandant of the Cavalry School. A. E. Codrington, C.V.O., C.B., is promoted to the rank of Major-General. H. D'U. Keary, D.S.O., 91st Punjabis (Light Infantry), to be A.D.C. to H.M. the King. C. J. Melliss, V.C., 53rd Sikhs (Frontier Force), to be A.D.C. to H.M. the King. F. G. Bond, C.B., to be a D.Q.M.G. at Headquarters in India. J. S. Cowans, M.V.O., to be Director-General of Military Education, India. C. J. Blomfield, C.B., D.S.O., is promoted to the rank of Major-General. C. F. Hadden, C.B. (temporary Bridagier-General), Director of Artillery at Headquarters, to be Master-General of the Ordnance (Fourth Military Member of the Army Council), and to have the temporary rank of Major-General whilst so employed. A. E. W. Count Gleichen, C.V.O., C.B., C.M.G., D.S.O., Equerry to the King, from a Military Attaché, to be an Assistant Director at Headquarters. W. E. Blewitt, C.M.G., from Commandant School of Gunnery for Horse and Field Artillery, to be Director of Artillery at Headquarters, and is granted the temporary rank of Brigadier-General whilst so employed. C. T. Reay, C.B., from h.p., to be an Officer in Charge of Records. F. W. B. Koe, from A.S.C., to be

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Assistant Director of Supplies and Transport. L. C. Jackson, C.M.G., from h.p., to be as Assistant Director at Headquarters. H. M. Lawson, C.B., Commanding 13th Infantry Brigade, is promoted to the rank of Major-General. H. G. Fitton, D.S.O., The Queen's Own (Royal West Kent Regiment), is appointed an A.D.C. to H.M. the King. F. J. Davies, from h.p., to be an A.Q.M.G. A. P. Penton, from Commandant Ordnance College, to be a Brigadier-General to Command Coast Defences. G. R. Townshend, from h.p., to be Commandant Ordnance College.

Memorandum of the Secretary of State Relating to the Army Estimates for 1907-8:—

Total Estimates.

The sum which Parliament is asked to vote for Army services in 1907-8 compares with the total of the Estimates for 1906-7 as follows:—

	£
1906-7	29,796,000
1907-8	27,760,000
Decrease	2,036,000

Establishments of the Regular Army.

The establishments of the several arms of the Regular Army have been subjected to a methodical examination, special attention having been directed to the two chief determining factors, viz., the Colonial and Indian garrisons to be maintained in peace, and the force which can be put into the field in an organised form.

Field Force.—An Order was published in January last providing for the reorganisation of the home part of the Regular Army. The basis adopted was simply that of taking the number of combatant units actually in existence at home and necessary for the maintenance of the Colonial and Indian garrisons, and organising these units into a force containing a due proportion of all arms, the size of the field force thus being limited by the establishment which it is necessary to preserve in order to find drafts and reliefs for the force abroad.

The Army at home, so organised, will furnish a cavalry division of four brigades, six infantry divisions of three brigades each, and a complement of Army troops and troops for lines of communication. The divisions have been arranged on a larger scale of three brigades in order to make them correspond with the organisation of the British Army in India. To make the new organisation possible, it has been necessary carefully to consider what parts of the existing organisation were defective. It was found that, owing to the deficiency in administrative elements ,such as Ammunition Columns, Army Service Corps, and Army Medical Corps, it would be, as things at present stand, impossible to mobilise as a fully organised force much more than half of the existing combatant units. With a view, among other things, to making possible the provision of these deficiencies, reductions have been made in Regular combatant establishments, surplus to what is required for the organisation of the six divisions, amounting to about 16,000 men.

Of the 99 batteries of Field Artillery now at home, only 66 are required for the mobilisation of the six divisions, though of these, owing to the present deficiency of Reservists to complete ammunition columns, only 42 can be mobilised. The 33 surplus batteries it is proposed to form into training brigades which will train men on a non-Regular basis, to

bring the *personnel* of the Artillery up to its full requirements, including the ammunition columns now lacking.

No reduction, however, of the establishments of the Regular Artillery can properly be made until *personnel*, trained on a non-Regular basis to the requisite extent, is ready to fill the gap. All the battery establishments of Horse and Field Artillery consequently remain for the present unchanged; certain economies wholly unconnected with this question have, however, been effected in the establishments of Artillery depôts.

Of the other troops surplus to the requirements of the new organisation, two battalions of Foot Guards have been dispensed with, and disbandment has been ordered. One has already ceased to exist, but the other, the 3rd Battalion Coldstream Guards, is usefully employed in temporarily strengthening the British force in Egypt. The necessity of finding, with due regard to economy, the money necessary for making good the deficient elements in the new force renders it impossible to maintain units of any arm in excess of its due proportion.

Eight battalions of the Line have been reduced from the Colonial establishment, as described below, but as the home battalions perform the vital function of providing drafts for battalions abroad, no more could be dispensed with while the force abroad remains at its present establishment.

Steps are being taken to make good the considerable deficiencies which, as already stated, exist in administrative troops, such as medical, transport, and other departmental services. It would, however, be both extravagant and unnecessary to give all the *personnel* of these services the costly training of the British Regular soldier. Careful investigation is in progress as to what proportion of this *personnel* is required at the beginning of the campaign to consist of fully-trained Regulars, and what proportion may be civilians specially trained for a sufficient period. The necessary plans for providing this non-Regular *personnel*, or Special Service Division, and giving it the necessary training, are being closely worked out.

Colonial Garrisons.

Infantry.—The consideration by the Committee of Imperial Defence of the garrisons maintained at Colonial stations has enabled the Army Council to make the withdrawal above referred to of eight battalions of British Infantry—four from South Africa, two from Malta, one from Gibraltar, and one from Ceylon, which will be replaced by a native battalion.

On the other hand, the establishment of all battalions remaining in the Colonies has been raised from 766 to 840 rank and file. This increase in the strength of the 10 battalions remaining in South Africa, together with the addition of a fifth Cavalry regiment there, very largely compensates for the reduction made. The result of these changes is to reduce the number of Line battalions abroad (including India) from 85 to 77, so that, if the present total number of 156 Line battalions were maintained, we should have, for the first time since the Cardwell system was established, a majority (79) at home. But these eight battalions are not required for the field force; their disbandment leaves us with only the manageable number of three two-battalion regiments, with both battalions abroad, as against seven in the establishments of 1906-7, and under present conditions the Government considers that their retention on the home establishment would not have been justified. The realisation of the Cardwell idea of equal numbers at home and abroad, thus brought within reasonable distance, may not be long delayed.

It has also been found possible to remove two native Indian battalions from Mauritius, one going to Ceylon to replace the British battalion

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withdrawn, and one returning to India, where it is no longer a charge upon Army Votes; and to disband the Chinese Regiment.

Establishments and Terms of Service.

The number of units of each arm to be maintained on the home establishment having been fixed, the question of the peace establishment to be assigned to each unit remains. This and the closely allied question of the length of the soldier's service with the Colours and in the Reserve form a subject of considerable complexity, requiring for its proper treatment much careful calculation and study of several factors, among which may be mentioned the proportion of the strength of each arm abroad to that at home, the drafts necessary and the organisation for finding them, the possibilities of recruiting, the Regular Reservists required on mobilisation and to make good waste in the field, the length of service necessary to make an efficient soldier of the several arms, the strength necessary for a unit in peace for training purposes, etc. This investigation is not yet complete for all arms of the Service, but much has been done towards putting this part of the subject on a scientific and, it may be hoped, a permanent basis. The following have been fixed as the periods of Colour service for the principal arms :—

Cavalry and Infantry ...	...	7 years (with 5 in Reserve);
Horse and Field Artillery	...	6 years (with 6 in Reserve);
Garrison Artillery ...	...	8 years (with 4 in Reserve);

with power to retain a man for such portion of an additional year with the Colours as may be necessary, if he be abroad on completing his term of Colour service.

Notwithstanding the return to the shorter period of Colour service for Infantry of the Line, and the consequent eventual increase in the Indian and Colonial drafts, the Army Council are satisfied that the establishment of each home battalion admits of being reduced from 750 to 720 rank and file.

Cavalry.—The Cavalry organisation represented in the Estimates of 1905-6, and provisionally continued in those of 1906-7, depended upon the formation of two large depôts for supplying drafts to regiments abroad. The buildings and training grounds necessary for these depôts do not exist, and it has been decided to omit them from the establishments of 1907-8, maintaining the regiments at home at an establishment which will enable them to find drafts for those abroad. The details of the Cavalry organisation are, however, not yet fully settled.

General Staff.—An Army Order was issued in September last, creating a General Staff for the Army, thus completing the reform begun, under my predecessor, by the creation of a Department of the Chief of the General Staff in the War Office itself.

Medical Services.—The principles of sanitation are being steadily inculcated in the Army by means of a School of Army Sanitation at Aldershot for combatant officers and men, and for non-commissioned officers and men of the Royal Army Medical Corps, by the compulsory examination of all officers in hygiene, the distribution of literature, and the delivery of lectures by officers of the Royal Army Medical Corps. By these means, and by the institution of sections of specially trained men to look to the sanitary affairs of units in the field, it is confidently hoped to reduce the proportion of sick in future campaigns.

Auxiliary Forces.—A careful survey has been made of the condition of the Auxiliary Forces. Investigation has shown that it is beyond question

that the existing organisation of these forces is such as to make it impossible to use them will full advantage to the nation.

Proposals for the reorganisation of the Auxiliary Forces, by which it is hoped to adapt them to our military requirements, will be laid before Parliament in due course. It will, however, be impossible to put these proposals into effect during 1907-8; and accordingly no provision for them appears in these Estimates. A Supplementary Estimate will be presented for the year 1906-7 to provide the sum necessary to enable the War Office to take over from the Public Works Loan Board the mortgages secured on Volunteer drill-halls and other property of the corps, which are held by that body. The charge will be met out of savings on the Army Votes for 1906-7; and the effect on the Estimates of 1907-8 will be to reduce them by the amount (about £28,000) repaid in the usual course as interest and sinking fund for these loans. In the event of the new scheme receiving the sanction of Parliament, and of the War Office taking over the existing secured debts of Volunteer corps, the operation will in this way be greatly facilitated.

Militia.—The numbers of the Militia fell from 98,812 on 1st January, 1906, to 97,632 on 1st January, 1907. This is partly due to the recruiting and re-engagement for the Militia Submarine Miners having been stopped in view of the transfer of their duties to the Navy.

The experiment referred to in my Memorandum for 1906-7, by which the recruits of 20 selected battalions drill for 6 months on enlistment instead of 63 days, has attracted recruits to these battalions in large numbers, and during the coming summer the selected battalions will undergo a lengthened training of 6 weeks instead of 27 days. The results of this interesting experiment, which necessitates an increase in the Militia Vote, will continue to be carefully watched.

Volunteers.—The strength of the Volunteers on 1st January, 1907, was 248,416, as compared with 241,708 on 1st January, 1906, an increase of 6,708; 5,343 less attended camp, but on the other hand, there was an increase in the number of efficients of 10,693.

The special Field Army Brigades have ceased to exist; but in their place forty-four brigades of Infantry Volunteers have been established, with permanent Brigadiers and Brigade-Majors. The whole of the Volunteer Infantry are thus under their own Brigadiers for all purposes throughout the year.

Short Rifle.

The output of short rifles has been satisfactory, and more than suffices to re-arm the whole of the Regular Forces, including Reservists. The Cavalry have all been re-armed; also the Infantry at home and certain other units. Issues to Infantry abroad are being made as rapidly as possible, and will shortly be completed.

The programme for 1907-8 is sufficient to provide reserve arms for the whole of the Regular troops.

A modified long rifle, suitable for charger loading, has been approved for the Volunteers, and the conversion of existing long rifles will begin in 1907-8.

Re-armament of Horse and Field Artillery.

The progress contemplated in the original programme has been more than realised. The supplies demanded by India have been completed and issued; the re-armament of the batteries in the Field Army and in South Africa is completed. Of the training batteries, some are completely equipped, and the remainder are being provided with sufficient guns for

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training, and will, it is anticipated, be completed before the coming practice season.

Good progress has been made towards the selection of an improved pattern of field howitzer; and provision is made in these Estimates for the commencement of manufacture, so that the re-armament of the howitzer batteries may be actively proceeded with in 1908-9.

Supply of Officers.

Sandhurst.—It is recognised as desirable that cadets should remain at Sandhurst for two years before joining their regiments; but the present accommodation there is so limited that in order to supply the number of officers now required by the British and Indian Armies, it has been found necessary to reduce the course to one year. As a makeshift, an extra class of Sandhurst cadets is at present accommodated at the Royal Military Academy, Woolwich, where rooms are temporarily available; but the enlargement of Sandhurst is a pressing necessity, and funds for the purpose have been set aside out of the limited sum remaining available under the Military Works Loan.

Reserve of Officers.—Large numbers of officers of all arms are required on the outbreak of war, in addition to those employed with the Regular Army in peace. As matters stand at present, these cannot be found from the Militia and Volunteers, those forces being themselves seriously short of officers. The question of supplying these requirements is one of considerable difficulty, and has been engaging the attention of the Army Council for some time past. A Committee, including representatives of the Universities and Public Schools is now sitting at the War Office, and it is confidently hoped that, as a result of its deliberations, practical steps may shortly be taken to begin the formation of this most necessary reserve. A sum of £50,000 has been provided in Vote 1 for expenditure on this service in 1907-8.

Administrative Training of Officers.

A new course of training for Army officers has been inaugurated at the London School of Economics. It is specially designed to train officers in business and commercial methods, in order to fit them for administrative posts. The subjects to be taught include Accounting, Commercial Law, Carriage by Land and Sea, Economic Theory, Economic Geography, and Statistical Method, all of which will be treated from the point of view of Army requirements.

18th February, 1907. R. B. HALDANE.

Abstract of Army Estimates, 1907-8 :—

Nos.—Votes.	—	Net Estimates.		Increase on net Estimates.	Decrease on net Estimates.
		1907-8.	1906-7.		
	I.—Numbers.	Total Numbers.	Total Numbers.	Numbers.	Numbers.
A	Number of Men on the Home and Colonial Establishments of the Army, exclusive of those serving in India	190,000	204,100	—	14,100

Abstract of Army Estimates, 1907-8—(continued).

		£	£	£	£
	II.—Ordinary Effective Services.				
1	Pay, etc., of the Army ...	9,835,000	10,220,000	—	385,000
2	Medical Establishment :—Pay, etc.	460,000	490,000	—	30,000
3	Militia : Pay, Bounty, etc.	840,000	819,000	21,000	—
4	Imperial Yeomanry : Pay and Allowances	410,000	423,000	—	13,000
5	Volunteer Corps : Pay and Allowances	1,152,000	1,244,000	—	92,000
6	Quarterings, Transport, and Remounts...	1,909,000	2,111,000	—	202,000
7	Supplies and Clothing ...	4,060,000	4,492,000	—	432,000
8	Ordnance Department Establishments and General stores (Ordinary Services)	608,000	745,000	—	137,000
9	Armaments and Engineer Stores (Ordinary Services)	1,195,000	1,386,000	—	191,000
10	Works and Buildings ...	2,436,000	2,353,000	83,000	—
11	Establishments for Military Education	137,000	132,000	5,000	—
12	Miscellaneous Effective Services	67,000	77,000	—	10,000
13	War Office and Army Accounts Department ...	567,000	559,000	8,000	—
	Total Ordinary Effective Services	23,678,000	25,051,000	117,000	1,492,000
	III.—Non-Effective Services.				
14	Non-Effective Charges for Officers, etc.	1,714,000	1,694,000	20,000	—
15	Non-Effective Charges for Men, etc.	1,709,000	1,684,000	25,000	—
16	Civil Superannuation, Compensation, and Compassionate Allowances ...	173,000	180,000	—	7,000
	Total Non-Effective Services	3,596,000	3,558,000	45,000	7,000
	Total Ordinary Services	27,272,000	28,609,000	162,0 0	1,499,000
	Net Decrease on Ordinary Services...			...	£1,337,000
	IV.—Extraordinary Services.	£	£	£	£
	Re-armament of Horse and Field Artillery.				
8	General Stores (Harness, Saddlery, etc.)	12,000	30,000	—	18,000
9	Guns, Carriages, Ammunition, etc.	476,000	1.157,000	—	681,000
	Total Extraordinary Services	488,000	1,187,000	—	699,000
	Grand Total—Ordinary and Extraordinary Services (*a*)	27,760,000	29,796,000	162,000	2,198,000
	Net Decrease on Ordinary and Extraordinary Services			...	£2,036,000

(*a*) In consequence of a transfer between Army and Civil Service Estimates, in respect of the cost of Construction and Maintenance of Administrative Telegraphs and Telephones, the Army Estimates are more by £3,600 than they would otherwise have been, the Votes affected being 9 and 10. £3,750 was provided for these services in Civil Service Estimates, 1906-7.

Repayments by Government of India, included as Appropriations in Aid of Army Estimates; other than Stores, etc., issued on Repayment.	1907-8.	1906-7.
	£	£
To meet the Expenditure for Raising and Training Recruits for India	566,700	562,700
For Deferred Pay and Gratuities for Service on the Indian Establishment	92,000	102,000
For Non-Effective Services of the European Army serving in India	967,170	947,801
	1,625,870	1,612,501
Deduct—Contribution from Army Funds towards Cost of Garrison of Aden and Sea Transport	230,000	230,000
	£1,395,870	£1,382,501

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C. W. DOUGLAS, A.G.
W. G. NICHOLSON, Q.M.G.
C. F. HADDEN, M.G.O.
E. W. D. WARD, Secretary.

War Office, 22nd February, 1907.

Memorandum on the Military Forces in the United Kingdom :—

1. At present the numbers and the organisation of the military forces in the United Kingdom are based on no scientific standard, and these forces have been raised on no definite plan. They are grouped, broadly, in three categories, viz. :—

a. The Regular Army and its Reserve.
b. The Militia and Yeomanry.
c. The Volunteers.

Each of these groups serve under distinct Acts of Parliament, and each has its own books of regulations; each group differs from the other in organisation, in terms of engagement, in liability for service in war, in the pay and remuneration which it receives, and in system generally; and even within each group there is great lack of homogeneity. Thus, the Regular Army and its Reserve are available for service anywhere; the Militia and part of the Yeomanry can be called on to serve in Great Britain and Ireland, while the Volunteers cannot, in their capacity of Volunteers, even with their own consent, be sent out of Great Britain. The Regular soldier and the Militiaman receive pay at Army rates when serving, and the Yeoman is paid at a considerably higher rate when out for training; the remuneration of the Volunteer for the time spent in camp being determined by his commanding officer, and varying greatly in different corps.

2. The condition of the first line for purposes of mobilisation is far from being satisfactory. Under Mr. Cardwell's plan of making units stationed at home in peace feed units serving over-seas, we necessarily maintain in the United Kingdom battalions more than sufficient in number for six large infantry divisions,[1] and to some extent the same

[1] There are in the United Kingdom eight battalions of Guards and 71 Line battalions. Only 72 battalions in all are required for six divisions, each division consisting of three brigades.

may be said of batteries, yet for lack of important services, like ammunition and transport columns, and supply and hospital *personnel*, we could not put in the field, as a thoroughly organised and fully equipped military force, much more than three Regular divisions; and after mobilising such a force there would be in many services a complete lack of reserves from which to make good the wastage of war. In the artillery alone, actuarial calculations go to prove that the existing Regular establishment, and the reserve it is likely to produce, will fall short of the mobilisation requirements of six divisions, including the numbers required to meet wastage for 6 months, by not less than 17,000 officers and men; yet the peace establishment of the Horse and Field Artillery has been increased by about 8,000 men since 1899 at an additional annual cost in British Estimates of £750,000.

3. Nor is it numbers only that are lacking to complete the cadres of divisions on mobilisation and to replace the wastage of war. There is, in present circumstances, an absence of effective machinery for dealing with and training the masses of men who, if an expeditionary force leaves these shores, must, after mobilisation, remain at home with a view to depleted cadres at the front being automatically replenished by means of a constant stream of drafts of trained officers and men for whom provision must be made beforehand. During the South African War this draft-finding machinery had to be entirely improvised, and throughout the years 1900-1-2 there was a constant struggle to make both ends meet by means of hastily formed units, for which no proper provision had been made before the war. In one of the provisional battalions raised during the war there were at one time no less than 2,200 non-commissioned officers and men with only 15 officers, many of them very inexperienced, to supervise and train the whole battalion.

4. As for the Auxiliary Forces, the Militia have been gradually removed far from their original position as the county force raised under the auspices of the Lord Lieutenant, as the territorial representative of the Crown in military matters. Neither the Militia nor the Yeomanry have any staffs of their own, their administrative services are a negligible quantity, and permanent organisation higher than the regiment and the battalion is unknown. The strength of the Militia has sunk from 3,274 officers and 114,489 other ranks in 1886 to 2,379 officers and 87,018 other ranks in 1906, yet the annual cost of the force has increased by £500,000 during the last 20 years. Under stress of circumstances the old Constitutional Force of the country has since 1882 gradually drifted into a position where its main purpose in peace is to furnish recruits to the Line, and its principal function after mobilisation must be to find drafts for the Regular Army. Moreover, in many parts of the country the Volunteers are competing severely with the Militia for recruits, and are in a position to offer superior attractions. From the unfortunate position in which the Militia now finds itself, it must be released before it can hope to regain the position in the National Army to which it is entitled by its importance and its great traditions. The true *rôle* of the Militia is undoubtedly, as a county force, to be recruited locally, as are the Volunteers at the present time, from men whose service will be voluntary, and who will be paid for the comparatively short time they are embodied or called out for consecutive training.

5. The condition of the Volunteers is hardly, if at all, superior to that of the Militia and Yeomanry. Scientific organisation in the modern sense is unknown, and the instruction and the higher training of the force are conducted entirely without system. Its Field Artillery is a negligible

quantity, and its administrative services bear no relation to its fighting strength. Moreover, the present distribution and proportion of arms and the deficiency of administrative services in the Volunteer Force are such as to render scientific organisation on modern lines and the combined training of all arms impracticable.

6. Military opinion is unanimous in holding that the Militia, Yeomanry, and Volunteers, as at present constituted, and serving under existing conditions, are quite unfit to take the field against European troops. This was the view adopted by the Elgin and Norfolk Commissions after taking a mass of evidence. Nevertheless, the annual cost of the Auxiliary Forces is about £4,400,000.

7. The present military position is, therefore, unsatisfactory to the last degree. Having regard to the cost and to the large nominal strength of the existing military forces, the inability to place and maintain in the field so small an expeditionary force as six divisions and four cavalry brigades, constitutes the most emphatic condemnation of our present military organisation. Moreover, the contemplation of large numbers by the people of this country, who are unable to take into account questions of war efficiency and war organisation, necessarily promotes dangerous national illusions.

8. The problem of the moment is how to reorganise the entire forces of the Crown, so far as they come under the control of the War Office, upon a simple system which will establish the relative proportions of the military elements of these forces, provide for adequate training, and remedy a condition of things in which some elements exist in superfluous quantities and others are wholly or partly deficient. More than 12 months of investigation have satisfied me that not only can a great increase of efficiency for war be made by such procedure, but that a substantial saving in the Estimates will also be effected by taking such a course.

9. The organisation described in this Memorandum has been the subject of close discussion with the military authorities in and out of the War Office. Its general plan is to divide the forces of the Crown into two categories, and two only. Any attempt to organise in three lines must, I am convinced, end in leaving us weak and ill-organised everywhere. The National Army will in future consist of a Field Force and a Territorial or Home Force. The Field Force is to be so completely organised as to be ready in all respects for mobilisation immediately on the outbreak of a great war. In that event the Territorial or Home Force would be mobilised also, but mobilised with a view to its undertaking, in the first instance, systematic training for war. The effect of such training, given for a period of at least 6 months, would be, in the opinion of all military experts, to add very materially to the efficiency of this force. The Territorial Force will, therefore, be one of support and expansion, to be at once embodied when danger threatens, but not likely to be called for till after the expiration of the preliminary period of 6 months.

10. The first question that arises is as to the size of the Field Force. Our hope is that we shall, in the near future, be in a position to mobilise completely, and to maintain in the field the four cavalry brigades and the six infantry divisions we already have in an organised form in peace, the state of affairs described in para. 2 being improved to this extent. This improvement can be effected by the simple process of using, where possible, instead of the highly trained and expensive Regular soldier less highly trained and less expensive officers and men who, in the opinion of the Army Council, can be made sufficiently reliable to carry out work, much of which is almost civilian in its nature. Such work was, in point of fact,

performed in South Africa to a considerable extent by civilians specially enlisted during the war. Officers and men enlisted on a non-Regular basis for service with the Field Force will be known as the "Special Contingent."

11. The question of providing officers of all kinds for the Special Contingent and for the Territorial Force has for some months past been engaging the attention of a Committee over which Sir Edward Ward is presiding, and I hope to be able to publish at an early date an *ad interim* report of the Committee, making certain definite recommendations on this most important subject. The men for the Special Contingent I propose to obtain from the classes which now enlist into the Militia and the Volunteers; a sufficient bounty will be offered to induce such men to undertake comparatively slight training in peace, and to engage to join the Regular Army on mobilisation.

12. The principle of making good the serious deficiencies in the first line by the employment of officers and men who undertake, annually, short periods of training in peace, will not be applied indiscriminately. Our war establishments are now being most carefully reviewed, in order to ascertain which officers and which men must be Regulars, and which positions may properly be filled by less highly trained individuals. On principle, all fighting units, *e.g.*, cavalry regiments, batteries of artillery, and battalions of infantry will, on mobilisation, be composed of Regulars or Regular Reservists, the services of the Special Contingent being utilised on mobilisation principally in the ammunition columns, for Army Service Corps duties, with the Royal Army Medical Corps, for railway work, and for engineer duties, which are commonly practised in civil life. A portion of the drafts required to make good the wastage of war will be found from the Special Contingent for all arms except the cavalry, whose requirements can be met entirely on a Regular basis.

Our investigations to date show that on mobilisation, including the numbers required to meet wastage for 6 months, nearly 3,500 officers and some 75,000 men will be required for the Special Contingent. The bulk of these men will receive 6 months' recruit training.

13. Under the new scheme, adequate machinery will be provided for dealing with and training the officers and men, who will, after mobilisation, be available for drafting purposes. For every pair of Line battalions the nucleus of a third Regular battalion will be maintained in peace.[1] These battalions will, in peace, be stationed at the existing infantry depôt barracks, where they will train recruits of the Special Contingent for 6 months, and provide for giving them a short annual training afterwards. On mobilisation these battalions will be at once brought to a war strength of about a thousand officers and men by calling in the officers and men of the Special Contingent, and by incorporating the immature men of the 1st or 2nd Battalion, whichever happens to be then serving at home, this latter battalion being itself completed to war establishment by means of Army Reservists.

14. In the Artillery the batteries surplus to the requirements of the six divisions of the Field Force, 33 in number, will be distributed to convenient centres throughout the United Kingdom, and will there fulfil

[1] The Regular establishment of these third battalions is still under consideration. It will be not less than one major, four captains, two subalterns, an adjutant, a quartermaster, and about 80 non-commissioned officers and men. The peace establishment of the Special Contingent will be, approximately, 20 officers and between 500 and 600 non-commissioned officers and men per battalion.

exactly the same functions, both in peace and in war, as will the 3rd battalions; that is to say, they will in peace train the officers and men of the Special Contingent, and will, on mobilisation, be brought to a strength, as 6-gun batteries, enabling them to train and supply the drafts required for the batteries and ammunition columns serving over-seas. Similar arrangements will have to be made for all arms and services, so that the whole of the Field Force can be maintained in a state of efficiency and undiminished in numbers throughout the duration of hostilities.

15. Turning next to the Territorial Force, the plan is to unite the Auxiliary Forces into one homogeneous body, recruited on a single simple principle: every man paid at Service rates of pay during the time he is embodied or called out for consecutive training, and all organised and trained according to a carefully framed scheme. The Volunteers and the Yeomanry will no longer be separated from the Militia. The Militia principle of county organisation will govern the whole. In each county the administration, as distinguished from the command and training of this force, will be in local hands. The Territorial Force will be constructed out of the existing Auxiliary Forces gradually, and with as little change and friction as possible.

16. The Yeomanry will form the cavalry of the Territorial Force. This will assist the realisation of the scheme, which is that the Territorial Force should be in itself an Army complete in the various arms and organisations as nearly as possible upon the same pattern as the Regular troops. We have existing material to the extent of about 300,000 officers and men who can be organised for this purpose and end. Out of this material the Army Council hope that a fully organised force of 14 infantry divisions and as many cavalry brigades will ultimately be obtained.

17. In the estimate of the cost of a Territorial Force which has been prepared, a staff consisting of a major-general, a general staff officer, and an administrative staff officer, has been allowed for each division. The Field Artillery of the Territorial Force will be armed with the 12-pounder and 15-pounder guns now being replaced in the Regular Army by the new Q.F. 18-pounder guns; 125 batteries of these guns on a 4-gun basis will shortly be available for the Territorial Force. There will, in addition, be batteries of howitzers and of heavy guns, as in the Field Force.

18. Last session I proposed in a memorandum that the bodies dealing with local military administration should be formed into County Associations, and these were to be fashioned upon a plan which had been worked out after a good deal of consultation. It was, however, said against it that the Associations were too rigidly constituted, and that too much independence of the military authorities was admitted. Associations are necessary for the maintenance of the County Forces; without their help in recruiting, in administration, and in finding rifle ranges, manœuvre grounds, etc., it is difficult to see how such forces can be looked after and organised in time of peace; and it is clear that without such assistance their maintenance in time of war, when their commanding officers will presumably be engaged in commanding them, would be impossible.

19. I have recently reconsidered the form of the Associations with skilled advisers, and I have come to the conclusion that it is practicable to retain all their valuable characteristics and yet remould their form so that they may be much more completely under the control of the military and financial authorities than was originally contemplated, and at the same time that the knowledge and the experience of the commanders of local units may be fully utilised. They will consist, according to the plan, mainly of the prominent county officials and commanders of the

Territorial Force, with local representatives and a Regular military element upon them. They will be under the control of the Army Council, who will model them according to the varying necessities of localities and schemes, and they will receive money only for defined purposes and in accordance with statements of requirements approved by the proper military and financial authorities. In other words, they will occupy the position of being under the military authorities, and will provide what is requisite for the local administration of the Territorial Forces within the counties.

20. Besides administering the local Territorial Forces they will look after Reservists and old soldiers of the Regulars, and in local matters will act as consultative bodies to the General Officer Commanding-in-Chief. The numerous Committees formed during the South African War to organise local military effort and to look after the families of sailors and soldiers at the front indicate that there is a wide field of usefulness for the new Associations both in peace and in war. To use Mr. Pitt's words in the House of Commons in February, 1804: "A great mass of our population may be made fit to serve many useful purposes in the hour of danger. . . . . Measures, however, should be arranged beforehand . . . . and no man should be allowed to run about in confusion crying out, 'Oh, that I could be any way useful to my country.'"

21. Command and training stand on a different footing, and here it is proposed that, in a most definite manner, the responsibility for putting into shape and bringing out for training, and for commanding the Territorial Forces, shall be in the hands of the General Officer Commanding. All funds connected with the training of the Territorial Force during embodiment or when called out for annual consecutive training with the drilling and instruction of recruits, and with special courses for officers and non-commissioned officers, will be directly controlled and disbursed by the military authorities. In this way there is the greatest chance of the efficiency of the force being secured, of its being trained so as to meet military requirements, and of its remaining in close relation with the Regular Forces.

22. The period of annual consecutive training for the Territorial Force will be not less than 8 days, nor more than 15 days in every year. Expenditure will be estimated for on the assumption that all officers and men borne on the peace establishment of the force remain in camp for the full 15 days, each General Officer Commanding being, however, allowed free scope to vary this period of training, subject to the 8 days' minimum, and to apply savings so gained for other purposes, *e.g.*, recruit training, courses of instruction, staff rides, etc.

23. The most important thing next to securing a proper organisation is the training of officers and non-commissioned officers, which must be much more thorough than at present. Better training of this sort will be widely welcomed, but if it is to be made a reality it must be made as easy to obtain as possible. There must be a considerable increase in the number of local schools of instruction in gunnery, drill, signalling, and musketry. Classes should be established periodically in the large towns for junior officers for tactics, map reading, sketching, reporting, war games, etc. For higher officers, courses and lectures on staff duties, combined tactics, mobilisation, marching, camping and billeting, supply of ammunition, food and forage, etc., would be most useful. The general staff and administrative staff officers at headquarters in commands and with the new Territorial divisions, as well as the officers belonging to the training brigades Royal Artillery, and to the infantry third or training battalions, will be available to assist materially in the instruction of the Territorial Force.

HOME.

24. These improved facilities for training should increase considerably the efficiency of the Territorial Force, but at the same time greater demands are likely to be made on the time of officers, especially commanding officers, than is the case under existing conditions. Moreover, the financial responsibility now resting with Yeomanry and Volunteer commanding officers is greater than the State has any right to ask individuals to undertake when fulfilling a public duty, and a system which imposes such responsibility in peace is clearly inapplicable to war conditions, when the commanding officer would take the field with his unit. In the Territorial Force, as in the Regular Army, the burden of financial responsibility must be removed from the shoulders of those whose business it will be to lead troops in war and to train them in peace. Proposals will be made with this end in view.

25. The position of cadet corps and of rifle clubs is receiving consideration. Clearly they must be regarded as an integral portion of the Territorial system, and they must not be permitted to grow up independently of, or as antagonistic bodies to, the Territorial Force. Conditionally on their being affiliated to units of the Territorial Force, it would appear desirable that they should share its instructors, its drill halls, and its ranges. The measure of State support to be granted to cadet corps and rifle clubs must depend on the extent to which they prove efficient feeders to, and generally further the interests of, the Territorial Force.

26. It remains only to summarise as briefly as possible the main features of the proposed scheme of reorganisation. Instead of the military forces in the United Kingdom being organised in three lines, as as present, an organisation in two lines only will be attempted. The first line, or Field Force, consisting of six divisions and four cavalry brigades, or about 160,000 officers and men, will be available for service anywhere, and its training and mobilisation arrangements should be such that it can take the field at short notice.

Adequate machinery will be provided for dealing with and training the officers and men required as drafts to meet the wastage of war in the Field Force.

All arrangements connected with the troops in the first line will be dealt with directly by the military authorities.

27. The second line, or Territorial Force, will also be organised in divisions and cavalry brigades, the whole National Army being homogeneous in this respect. It is hoped that the men, horses, material and money required to form 14 Territorial divisions and 14 cavalry brigades will be forthcoming. The fulfilment of this estimate, however, depends obviously on the goodwill and the patriotism of the nation itself. Complete readiness for war at all times cannot be looked for in a citizen force raised on voluntary lines, and it is an essential feature of the scheme that a period of embodiment for training after mobilisation will be necessary before the Territorial Force can be regarded as fit to meet a highly trained and organised enemy. The principle which now obtains in the Regular Army of distinguishing clearly between the command and training of troops on the one hand and the financial and administrative arrangements connected with their maintenance on the other will hold good equally in the Territorial Force. The first of these functions will be vested entirely in the military authorities, the second being entrusted as far as possible to the County Associations it is proposed to call into being.

25th February, 1907. R. B. HALDANE.

CORRESPONDENCE.

THE TRAINING OF MILITIA ARTILLERY.

To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

SIR,—With your permission I should like to briefly support Captain Bird's remarks in your issue of December last on Colonel Legard's lecture on the above subject.

Captain Bird points out the great difficulty Garrison Artillery companies have in maintaining their own requirements in the matter of specialists, especially at home.

After 12 years' experience in command of a company, and as a Lieut.-Colonel R.G.A., I can most fully endorse what he says.

When, in 1890, the system of prize firing was altered in the R.G.A., and it was arranged that batteries, as they were called in those days, should compete as a whole, it was at once realised that success would depend in a great measure on the training of the gun layers, of which each battery had to keep up 16 out of a total strength, exclusive of casualties, of about 150.

Well can I remember the infinite trouble taken to train those layers, and the hours passed by my officers and myself on the sighting steps checking their work by the alternative sights. The result, after some months' training, was, roughly speaking, as follows:—Three or four men were more or less perfect, four more were good layers, half-a-dozen only fairly reliable, while the last two or three vacancies could not be satisfactorily filled up at all.

A really perfect layer, either at a Q.F. or heavy gun, is as hard to make as a crack game shot.

Units at home have the same difficulty in keeping up their establishments of depression range and position finding specialists; it was some years after the introduction of these instruments before the requisite number of trained men could be found. Home companies have often to send many of their specialists abroad every trooping season, to fill up units at a foreign station.

In September, 1902, a company at Sheerness, which had to man 8 Q.F. guns, was left after the autumn reliefs had been found with but two qualified gun layers. How on earth, under such circumstances, could Militia battalions be supplied with specialists from affiliated R.G.A. companies?

Colonel Legard is, in my opinion, absolutely right in suggesting that in the brief period of training they undergo, Militia regiments cannot provide their own specialists, but though the authorities can, with a stroke of the pen, alter the R.G.A. company establishment of specialists from 25 to 50, as Colonel Legard proposes, to find them is a very different pair of shoes. If a company, 150 strong, can find 25 capable specialists, you may take it that 300 men will be required to find 50.

Another point is, that specialists, especially gun-layers, ought, to get good results, to practice regularly with the rest of the detachment. Man is not a mere machine.

The whole question bristles with difficulties. The formation of District Establishments, in 1891, was an attempt to solve it; but this scheme was based on the supposition that there was no such thing as *esprit de corps*, and that a gunner would do anything for 3d. a day extra. The idea, of course, was to form a small body of specialists at each fort, who would remain there permanently and work for whatever unit came to man it. Men, however, would not leave their companies to become no man's children, as they called it, and it was only after considerable modifications of the original orders were introduced that these District Establishments could be formed at all. My own experience is that they have been a failure from first to last.

Perhaps the easiest way of providing the Militia with specialists would be to post them like sergeants to regiments as part of the permanent staff. This would cost money, but bricks cannot be made without straw, and as gunnery becomes more and more scientific, more and more money will have to be spent on the *personnel* affected.

As regards Militia *versus* Volunteer training, as alluded to in Captain Bird's concluding remarks, if a Volunteer regiment has access all the year round to the works it mans on service, I quite agree with that officer, and, under such circumstances, and given a liberal allowance of practice ammunition, I do not think it impossible for the corps to find many of its own specialists.

I have the honour to be, Sir,

Your obedient servant,

P. SALTMARSHE,
Colonel, late R.A.

Daresbury House, York.
17*th February*, 1907.

NAVAL AND MILITARY CALENDAR.

FEBRUARY, 1907.

5th (T.) H.M.S. "Hyacinth" completed to full complement for service in East Indies.

8th (F.) 3rd Bn. Northumberland Fusiliers left South Africa for England in the "Braemar Castle," to be disbanded.

12th (T.) Stranding of the French Second-class Cruiser "Jean Bart" off Pedra de Galhe, West Coast of Africa.

13th (W.) 1st Bn. Royal Inniskilling Fusiliers left Ireland for Crete in the "Sicilia."

14th (Th.) 3rd Bn. Royal Warwickshire Regt. } arrived in England from South
1st Bn. Norfolk Regt. } Africa in the "Soudan."

19th (T.) H.M.S. "Hyacinth" left Chatham for East Indies.

" " H.M.S. "Queen" arrived at Plymouth from Mediterranean.

22nd (F.) The Army Estimates were published, showing a decrease of £2,036,000

24th (S.) 1st Bn. Royal Inniskilling Fusiliers arrived in Crete from Ireland in the "Sicilia."

25th (M.) 2nd Bn. Royal Sussex Regiment left Crete for Ireland in the "Sicilia."

26th (T.) H.M. The King conferred the G.C.B. upon H.H. Prince Henry of the Netherlands for his sevices in connection with saving life at the wreck of the "Berlin."

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A Staff Officer's Scrap-Book. By Lieut.-General Sir IAN HAMILTON. Vol. 2. 8vo. 18s. (Edward Arnold.) London, 1907.

The International Law and Diplomacy of the Russo-Japanese War. By A. S. HERSHEY. 8vo. 12s. 6d. (The Macmillan Company.) London and New York, 1906.

The Earlier Adventures of a Naval Officer. By Sir SPENSER ST. JOHN. Crown 8vo. 6s. (Digby, Long & Co.) London, 1906.

Indiscreet Letters from Peking. By B. L. PUTNAM WEALE. 8vo. 7s. 6d. (Hurst & Blackett, Ltd.) London, 1906.

Les Royalistes contre l'Armée, 1815-1820. By E. BONNAL. 2 vols. 8vo. 9s. (R. Chapelot et Cie.) Paris, 1906.

Memories. By Major-General Sir O. T. BURNE. 8vo. 15s. (Edward Arnold.) London, 1907.

Etude sur la Stratégie Navale. By R. DAVELUG. 8vo. 5s. (Berger-Levrault et Cie.) Paris, 1905.

The Battle of Wavre and Grouchy's Retreat. By W. HYDE KELLY. 8vo. 8s. (John Murray.) London, 1905.

The British Army Under Wellington, 1813-1814. By T. MILLER MAGUIRE. 8vo. 4s. (Presented.) (William Clowes & Sons, Ltd.) London, 1907.

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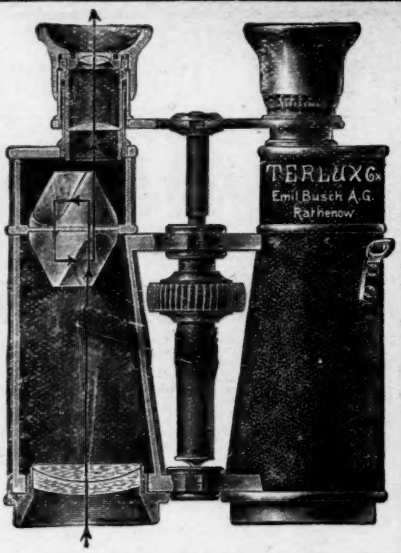

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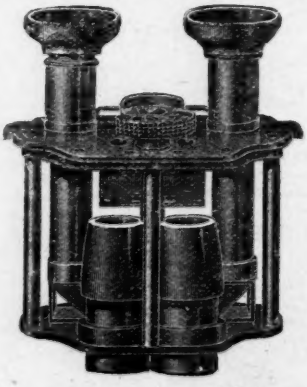

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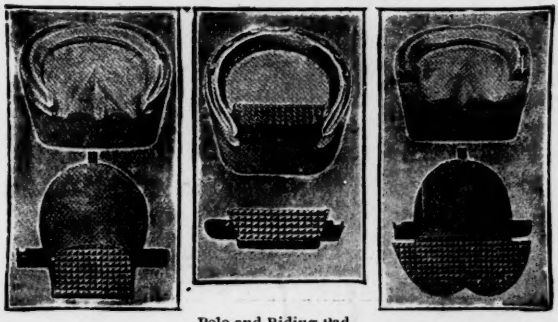

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